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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors.)

FIBERS A

STANDARD HANDBOOK OF TEXTILES. A. J. Hall. London, Natl. Trade Press Ltd., 1948. Price: 21/–.

The author has clearly distinguished between the well-known viscose, acetate and cuprammonium rayons and the less familiar kinds such as high tenacity rayon, lanital, aralac, soybean fiber, ardil, seaweed fiber, nylon, vinyon, saran, etc. The natural fibers are not forgotten and there are notes on cotton, wool and other animal hairs, silk, flax, hemp, kapok, asbestos and glass fibers. Yarn and cloth production follows in 55 pages most of which refer to cotton spinning and weaving although the production of other yarn and cloth has not been overlooked and there are brief notes on knitting and lace manufacture. The next 118 pages deal with textile finishing, principally of woven cloth with emphasis on cotton and rayon goods, while a further 20 pages are set aside for special fabric finishes and color. The final chapter, a short one of only 7 pages, is concerned with the care of clothes and simple fiber identification tests.—*Textile Mfr. 74*, 281 (June, 1948).

Natural fibers A 1

New fiber decorticating machine and process is announced. Anon. *Cord Age Mag. 50*, 16 (Aug. 1948).

A brief description of the Fiberator is given. The machine, developed by Fiber Industries, Inc., New York, operates with rubber and steel crush and crimp rolls, stripping blades and air pressure. The Fiberator is said to decorticate bast or leaf, wet or dry fiber-bearing plants, but is not intended for field operation. An electrochemical process for the recovery of cellulose from fiber plant residues was also announced but no information about it is given.

Oxidation of cellulose. Richard L. Kenyon. *Ind. Eng. Chemistry* & R. H. Hasek, Lee G. Davy, & K. J. Broadbooks, Tennessee Eastman Corp. *Ind. Eng. Chemistry 41*, 2-8 (Jan. 1949).

During the latter part of the war, the Eastman organization and Parke, Davis, & Co. cooperated in producing and marketing a form of oxidized cellulose capable of being implanted in the body and safely absorbed. Tennessee Eastman designed and built a plant to make 50,000 pounds per year, by a process of batch oxidation of multilayer pads of cotton gauze with nitrogen dioxide, followed by batch washing and air drying. Type 316 stainless steel is used for most equipment. Nitrogen dioxide is vaporized and circulated around a loop containing the oxidizer, a blower, and a heat exchanger. Nitric oxide content of the circulating stream is controlled by condensing part of the stream and returning it to the evaporator, and by reoxidizing the gas with oxygen. After 16-18 hours of oxidation at 25°C., the gauze is washed 8-9 times in demineralized water and dried at temperatures below 50°C by forcing air through the pad for 8 hours. Product quality is checked by tests for solubility in dilute sodium hydroxide solution, stability in dilute sodium bicarbonate solution, carboxyl, nitrogen, moisture, and ash contents, tensile strength, shrinkage, and color by methods indicated in this paper. The product, which has at least 40% of the tensile strength of untreated gauze, but is soluble in dilute alkalis, is packaged in rolls and pads. Oxidized cotton is also made. Though of decided value in the pharmaceutical field, these products have found no other applications as yet.

Plasticizer for cellulose ethers. Melvin J. Hunter & Earle L. Kropscott (to The Dow Chemical Co.). Can. P. 444 434, Oct. 7, 1947.

A plasticized thermoplastic composition characterized by its high degree of flexibility and by its high resistance to impact at temperatures as low as —40°C, which includes ethyl cellulose and a compatible amount greater than 8% by weight of an alkyl ester of an acid selected from the class consisting of hydroxy- and acyloxystearic acids.

Cotton

Degree of polymerization, spiral structure, and strength of cotton fiber. Lyle E. Hessler, Marion E. Simpson, USDA & Earl E. Berkley, Natl. Cotton Council of Am. *Textile Research J. 18*, 679-83 (Nov. 1948).

Cotton fiber from bolls collected on opening and dried in the laboratory without exposure to direct sunlight were tested for fiber length, fineness, strength, spiral structure, and degree of polymerization (D.P.). These properties were each correlated with the Pressley strength index in simple correlations and it was found that the spiral structure and Pressley strength index gave the highest correlation coefficient, and the D.P. and Pressley index the second highest. The D.P. and Pressley index gave a higher coefficient of correlation than the spiral structure and Pressley index for variety effects. Significant correlation was obtained between fineness and Pressley index for total and variety effects, between fineness and D.P. for all effects, and between spiral structure and D.P. for all effects. A significant correlation was found when fiber length was correlated with chain length (D.P.) for total over-all effects. It was concluded that the length of the cellulose molecule (D.P.) is an important factor in the physical properties of cotton fibers. All multiple correlations were highly significant for varieties within locations and for over-all effects. Spiral structure and chain length (D.P.) gave the highest coefficient of correlation when correlated with Pressley strength.

Discussion of cotton grades. Carl D. Brandt, Whitin Machine Works. *Whitin Review*, 14-18 (May, 1948).

This is a general discussion of cotton fibers and the characteristics that determine spinnability. The effects of mechanical harvesting and ginning on fiber quality are considered. It is pointed out that recent improvements in textile machinery have resulted in a decided betterment of yarns and fabrics, and that if a corresponding amount of care and study are given to the production of an improved raw material, the position of cotton as a textile fiber will be more secure.

Examination of damaged cotton with the aid of the Congo red test. A. D. J. Meeuse & F. H. M. A. Klompé. Communication No. 82 from the Vezelinstituut T. N. O., Delft, Netherlands, July, 1946; *in Dutch.*

The test developed by G. C. Clegg, *J. Textile Inst. 31*, 63-82 (1940), *Shirley Inst. Memoirs 17*, No. 3 (1939-40), was found to be an excellent addition to the usual testing methods, but, because it is a biological method, it is not as accurate as chemical and physical tests. It is therefore advisable to compare the results of tests on cotton samples of unknown history with standard samples which have been tendered under controlled conditions.

A number of cotton samples were tendered by various procedures and tested at room temperature on a microscope slide. High temperature and prolonged action of the stain resulted in a lack of contrast. Needles should not be used to separate the fibers before staining since they may cause additional tendering. The preparations could be preserved in 18% NaOH solution for a few days. For permanent mounts, water glass was found suitable. These mounts could be kept for at least 4 months when the edges of the coverglass had been sealed.

Impacts of mechanization on cotton spinning. Geo. W. Pfeiffenberger, Chicopee Mfg. Corp. *Textile Industries 112*, 93-4 (Dec. 1948).

Results of tests on hand-picked and mechanically-harvested cotton in spinning reveal that the machine-picked cotton gives lower grades, higher waste losses, a greater number of neps, lower spinning efficiency, better yarn strength, and poorer yarn appearance. These differences in harvesting methods can be overcome by improved practices.

Reports on Indian Cotton, 1947. The Indian Central Cotton Committee, Technological Laboratory, Matunga, Bombay, has just released the following:—(1) Technological Bulletin, Series A, No. 67,—"Technological Reports on Standard Indian Cottons, 1947," price Re 1-8. (2) Technological Bulletin, Series A, No. 68—"Technological Reports on Trade Varieties of Indian Cotton, 1947," price Re 1-8. (3) Technological Circulars Nos. 704 to 732 give the spinning test reports on [a number of Indian cottons] . . . Full particulars are given for waste percentages and yarn test results.—*Textile Mfr. 74*, 439 (Sept. 1948).

Production of loose fur for felt manufacture. Andrew McLean (to Imperial Chemical Industries Ltd.). Can. P. 446 626, Feb. 10, 1948.

A method for the production of loose fur suitable for the manufacture of felt comprises contacting the hair in pelt with an aqueous solution comprising formaldehyde in .5 to 5% concentration, hydrochloric acid and a saline concentration of a salt having the effect of reducing the acid concentration required to enable a pH of not more than 1.0 to be obtained from the mineral acid, drying the pelt thus treated and cutting the carrotted hair away from the skin.

Elastic properties of single jute filaments. K. R. Sen. *J. Textile Inst. 39*, T339-50 (Oct. 1948).

An apparatus was constructed for measuring the load required to bend a single layer fringe con-

sisting of parallel jute filaments laid side by side over a width of 2 cm. It was found that the cross-sectional dimensions of filaments play an essential part in the determination of flexural elasticity of jute fiber; the root portion of the fiber is less pliable than either the top or middle portion; the filaments in the pod stage probably undergo a dimensional contraction; in passing from the bud stage to the flower stage in the cycle of the plant, a relative flattening of the cross-section probably occurs.

Degumming ramie by new Australian process. W. F. Prehn. *Textile Mfr. 74*, 304-6 (July, 1948).

A process for degumming ramie, invented and patented by M. M. Wise, has been carefully investigated by the Australian Government over a period of 2 years. As a result of this careful study, the process has been pronounced entirely successful. According to the process, stems of green ramie are subjected to steam under pressure; after drying, the stems are crushed, causing the woody substance to break away to release the degummed fibers. The process permits 100% recovery of the fiber, does not damage it in any way, and results in no loss of luster or inherent natural qualities. All traces of gum are removed at a cost considered infinitesimal in relation to the market price of the fiber. Fibers degummed by this process are being given commercial spinning tests in British textile mills. (See also USP 2 440 562, April 27, 1948, TTD *5*, 397; Can. P. 440 095, Mar. 11, 1947, TTD *4*, 149).

Ramie seems on verge of success. Lawrence E. Hartmus, *Chemurgic Digest 7*, 16-7 (Dec. 1948). (Condensed from the *Wall Street Journal.*)

Ramie has been unsuccessful as a textile fiber for two reasons: (1) processing is extremely difficult by machine and costly by hand, and (2) machinery used for spinning of cotton or wool has not worked on ramie. At the present time, several developments have improved the situation. Chemical methods of degumming have been developed. New machines for processing and modification of cotton equipment for spinning have combined to produce reasonably satisfactory ramie fiber. Yarns up to 80's count have been satisfactorily spun. The cost, however, for ramie materials is still very high, running approximately 3 times the cost of cotton fabrics of the same type. Developments of by-products are important and may change the picture.

LCL

Air cleaner and filter unit. Houdaille-Hershey Corp. Australian P. 129 415, Jan. 11, 1946.

An economically constructed filter comprises numerous crimped strands of vegetable fiber impregnated with plastics extending generally parallel to the direction of air flow therethrough. The crimped strands are fireproofied and bonded together and are located above an oil sump in a casing within the cleaner housing and secured therein by a clip.

Wool

Chemical technology of wool. J. L. Stoves. I-VI. *Fibres 8*, 302-5 (Sept. 1947); 407-09 (Dec. 1947); *9*, 50-2 (Feb. 1948); 188-90 (May, 1948); 305-06 (Aug. 1948); 377-9 (Oct. 1948).

The 6 topics covered so far in this series of articles are: I—Structure of the wool fiber; II—Action of water on wool; III—Carbonizing; IV—Principles of scouring; V—Some scouring problems; and VI—Milling.

Electron microscope study of the structure of the wool hair. Chre. J. Gorter & A. L. Houwink. Communication No. 89 of the Vezelinstituut T. N. O., Delft, Netherlands. Reprinted from the *Proc. Roy. Acad. (Netherlands) 51*, No. 2 1948).

This work was in collaboration with the Institute for Electron Microscopy at Delft. Mechanically loosened scales showed no specific structure and the interior was a solid mass, but, when digested with trypsin, they became spongy. Cortical cells digested with trypsin showed fibrilization. Microfibrils about 200 angstroms in diameter were observed. The smallest particles obtained by grinding wool had a diameter of 160-200 angstroms. Eleven electron microscope photographs are given. Many of these show a striking resemblance to those of Mercer and Rees, *Australian J. Experimental Biol. Med. Sci. 24*, P2, 147, P3, 175 (1946) and of Farrant, Rees, and Mercer, *Nature 159*, No. 4042 (1947).

New machine for producing curled bedding and stuffing flocks. N. C. Gee. *Tetile Mfr. 74*, 421-2 (Sept. 1948).

Features of a machine, made by Wilson Knowles and Sons, Hecmondwike (England), for producing curled flock are described.

Non-felting wool. Finishing Processes (Textiles) Ltd. Australian P. 129 367. July 1, 1946.

A thin film of water-soluble organic compounds containing potentially active halogen is first de-

posited on the wool fibers, then slow acidic decomposition of such films is induced at ordinary temperatures, to free the halogen in situ. The preferred potentially active halogen compounds are water-insoluble N-dihalogeno derivatives of arylsulfonamides dissolved in non-polar solvents, e.g. from 0.5% to 4% by weight of N-dichlorobenzene sulfonamide dissolved in dichloroethane and diluted as necessary with petroleum oil or chlorinated paraffins. After immersion from 5 to 30 seconds in the above bath, the wool or piece goods are squeezed, air dried, treated with 1 to 3% aqueous acid solution, antichlored and finally finished as required. Insect repellents may also be incorporated in either bath.

Structure of the wool fibre. A. F. Barker, Emeritus Professor of the Univ. of Leeds. *Textile Mfr.* 74, 256-8 (June, 1948); 313-5 (July, 1948).

(Note: Part 2 is entitled: The Architecture of Wool Fibres). This is an account of the author's studies of the structure of the wool fiber, the results of investigations associated with some of the problems already solved, and those which still remain unsolved. Numerous photomicrographs are given.

Artificial fibers A 2

Apparatus for the production of artificial filaments. Richard W. Stanley (to Am. Viscose Corp.). USP 2 455 530, Dec. 7, 1948.

A constant-volume pump, operating at constant speed in combination with a rotary pump operated intermittently, produces artificial filaments having irregular denier in which the thick as well as thin portions may have various lengths within an extremely wide range and which may occur at various regular or irregular intervals.

Free fall fiber. Ira V. Hitt (to E. I. du Pont de Nemours & Co.). USP 2 455 174, Nov. 30, 1948.

Highly crinkled continuous filaments, resembling wool, which exhibit no preferential molecular orientation in the direction of the filament axis are produced by the dry or evaporative spinning process wherein a solution comprising essentially a thermoplastic filament-forming material dissolved in a volatile organic solvent, or solvent mixture, is extruded in the form of fine streams into an evaporative atmosphere under such conditions that the extruded material is subjected only to compressive force until it sets in the form of self-sustaining filaments; i.e., the spinning solution is extruded under (1) sufficient pressure or at a sufficiently

high jet velocity that the filaments formed are pushed away from the extrusion zone by subsequently extruded material issuing from the jets, and (2) in the absence of any tension on the freshly formed filaments until they are substantially set. See also USP 2 416 390, Feb. 25, 1947 (TTD: 4, 103).

Method of making filter cartridges, abrasive sheets, scouring pads, etc. Fred W. Manning. Can. P. 446 076, Jan. 13, 1948.

A method of making articles of the character described comprising reducing a spinning material to a fluid condition, disrupting the said fluid material into a plurality of filaments, and depositing the said filaments in an adhesive and intersecting condition upon a retaining wall moving in an endless path to build up a succession of integral fabric windings in which each successive winding is deposited in a sufficiently adhesive condition to adhere to its adjacent winding.

Method of manufacturing wool imitation staple fibers. Henry Von Kohorn (to Am. Patent Development Corp.). Can. P. 444 726, Oct. 28, 1947.

A method for the manufacture of wool imitation staple fibers with permanent crimp which comprises spinning, washing, and cutting filaments, opening the cut fibers before entering a dryer, partly drying the fibers, passing the fibers through a second opener and then completing the drying.

Materials and machines used in the manufacture of cellulose acetate rayon. H. Livesey & E. W. Fletcher. BIOS Final Rept. 1133, Item 22, 31. Sept.-Oct. 1946. 74 pp. PB L 77730. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8, 1947). Microfilm $2.00, Photostat $5.00.

This document contains the results of a study by a team of British investigators of materials and machines used in the manufacture of cellulose acetate rayon in Germany. Based on interrogation of German leaders in this field and visits to a number of plants, it deals especially with the manufacture of ceramic thread guides, roller bearing inserts, gear pumps used in rayon industry, sicromal tubing and welding rods for bronze vessels for the manufacture of cellulose acetate. In addition, processes covering the German manufacture of cellulose acetate and cellulose acetate rayon are fully described. Drawings included.

Pigmented material. Wm. Whitehead & Richard R. Sezler (to Camille Dreyfus). Can. P. 444 894, Nov. 4, 1947.

Process for the production of colored yarns of high tenacity comprises adding to a solution

of an organic ester of cellulose in a suitable volatile solvent therefor a solid pigmented organic ester of cellulose material in which the pigment forms the dispersed phase and the organic ester of cellulose the external phase, extruding said solution into an evaporative atmosphere whereby pigmented organic ester of cellulose filaments are formed, stretching said filaments to a substantial degree and then saponifying said stretched pigmented organic ester of cellulose filaments.

THE TAG THAT TELLS THE CONSUMER—WHAT? Kingsport, Tenn., Tennessee Eastman Corporation, 1948. 26 pp.

This is an illustrated booklet presenting the reasons for calling cellulose acetate "estron". The behavior of regenerated cellulose and cellulose acetate under identical conditions is compared in numerous photographs.

Acrylonitrile compositions and articles. E. I. du Pont de Nemours & Co. Australian P. 129 575, Jan. 22, 1946.

A composition, suitable for yarns, fibers and films, comprises a solution of a polymer of acrylonitrile, in which at least 85% by weight of the polymer is acrylonitrile in a solvent comprising N,N-dimethylcyanamide. Shaped articles may be obtained therefrom by removing all or part of the solvent by an evaporative spinning process, or by extruding the solutions into liquids which are miscible with the N,N-dimethylcyanamide, but which are non-solvents for the polymer.

Acrylonitrile polymer solutions and articles therefrom. E. I. du Pont de Nemours & Co. Australian P. 129 359, June 12, 1945.

Solutions of acrylonitrile polymers containing at least 85% by weight of acrylonitrile are claimed wherein the volatile organic solvent therefor is one or more of: dimethyl formamide, dimethyl methoxy-accetamide, N-formyl morpholine, N-formyl hexamethylene imine, butadiene cyclic sulfone, tetramethylene cyclic sulfone, P-phenylene diamine, and the m- and p-nitrophenols. The solutions may be used for forming into filaments, bristles, films, moulded or laminated articles.

Apparatus for melting glass. Games Slayter (to Owens-Corning Fiberglas Corp.). USP 2 455 907, Dec. 7, 1948.

An apparatus for melting and refining glass comprises a hollow body having a discharge opening at the bottom through which both molten glass and products of combustion escape from the body, a plurality of gas burners arranged to produce

a swirling flame in the body, and means for introducing glass batch materials into the melting chamber under a fluid pressure at least equal to the pressure of the gas entering the burners. The chamber is sealed against escape of products of combustion except through the discharge opening which is restricted to such an extent that sufficient pressure is built up in the chamber to discharge the products of combustion and molten glass. The apparatus may be used to produce glass fibers or, in series, may be used to feed a common pool when a large supply of glass is needed for large fabricating operations (see also USP 2 455 908 below).

Fibrous glass production. R. Moncur Thomson. *Brit. Plastics 20*, 550-2 (Nov. 1948).

The production of glass fibers is described briefly, and some properties and uses noted.

Glass fibers. Owens-Corning Fiberglas Corp. Australian P. 129 495, Apr. 19, 1945.

A method of producing fine fibers of heat meltable material such as glass comprises burning a combustible gaseous mixture in a confined space and directing the resultant hot gas in a restricted path at high speed and high temperature onto an elongated body of the material. The glass or the like in streams from feeder nozzles may be passed over an attenuating roller to further rollers and through guide tubes where it is engaged, substantially in its line of travel, by the products of combustion issuing from 2 converging combustion chambers, the resulting fibers being produced by the melting and attenuating occurring at the convergence of the gas blasts which effect a back pressure heating zone slightly forward of the attenuating zones.

Method of making glass fibers. Games Slayter (to Owens-Corning Fiberglas Corp.). USP 2 455 908, Dec. 7, 1948.

A method of producing glass fibers consists of continuously feeding batch materials under pressure into a confined melting zone having a restricted discharge path therein, collecting the glass into a hollow stream as it flows toward the discharge path, and discharging the swirling products of combustion and the hollow stream simultaneously from the melting zone to form the glass into fibers. The melting chamber is lined with refractory material and the oil, gas, or other fuel is introduced tangentially to the axis of the chamber and upon contacting the heated walls develops considerable turbulence and velocity. In this process, it is unnecessary to maintain a large body of

glass in a molten state. (See also USP 2 455 907 above.)

Orlon seen practical for apparel fabrics. Jos. B. Quig, E. I. du Pont de Nemours & Co. *Am. Wool Cotton Reptr. 62,* 11-12 (Dec. 9, 1948).

The physical properties of Orlon acrylic fibers are described and compared with the properties of nylon and rayon. It is claimed that Orlon will supplement, rather than compete with nylon; and its possible use in wearing apparel, window shades and curtains, umbrella fabrics, etc. is noted. Processing of Orlon fibers is also briefly discussed.

Polyamide as a packing material. I. G. Farbenindustrie A. G. FIAT Microfilm Reel F 218; frames 573-575. Oct. 11, 1940. PB L 73560. *Bibl. Sci. Ind. Reports 6,* 645 (Aug. 15, 1947). Enlargement print $1.50; *in German.*

X-ray investigation of polyamide fibers. I. G. Farbenindustrie A. G. FIAT Microfilm Reel R 18; frames 5921-5941. Dec. 7, 1938. PB L 73824. *Bibl. Sci. Ind. Reports 6,* 581 (Aug. 15, 1947). Enlargement print $2.00; *in German.*

Fibrous material treating method. Francis C. Atwood (to Natl. Dairy Products Corp.). Can. P. 444 863, Nov. 4, 1947.

A synthetic protein-base fiber shaped from an alkaline-dispersible acid-coagulable protein, hardened with formaldehyde and acylated with an anhydride of acetic acid selected from the group consisting of acetic anhydride and ketone so as to have properties similar to those of natural wool in that the fiber does not become brittle upon drying after treatment in boiling aqueous solutions and has dyeing properties similar to those of natural wool.

Pilot-plant manufacture of peanut protein. Jett C. Arthur, Jr., A. J. Crovette, L. J. Molaison, W. F. Guilbeau, & A. M. Altschul. Southern Regional Research Lab. *J. Am. Oil Chem. Soc. 25,* 398-400 (Nov. 1948).

Pilot plant production of peanut protein from solvent-extracted meal was investigated with respect to the effect of temperature of extracted liquor during precipitation and the rate of addition of sulfur dioxide on the settling rate of the precipitated protein. As the rate of addition of sulfur dioxide was increased, and the temperature of the extract liquor was decreased, the density and the settling rate of the protein curd increased. Spray washing of the extracted meal was more efficient than the previously reported dilution method of

washing and resulted in a greater yield of protein. (See also: Production and Properties of Sarelon [a protein peanut fiber]. A. L. Merrifield & A. F. Pomes. *Textile Research J. 16,* 369-77 (Aug. 1946); TTD *3,* 440).

Preparation and properties of cottonseed protein dispersions. Jett C. Arthur, Jr. & Melvin K. Karon, Southern Regional Research Lab. *J. Am. Oil Chem. Soc. 25,* 99-102 (Mar. 1948).

The utilization of vegetable proteins in the manufacture of fibers, films, adhesives, paper and textile sizes, etc., is dependent on various physical properties of the proteins and of their aqueous dispersions. The present study was an investigation of methods for preparing nongelling dispersions of cottonseed proteins in high protein concentration which have good tackiness and desirable viscosities for industrial use. It is shown that the properties of isolated cottonseed protein depend on (1) the method of isolating the protein, (2) the concentration of protein in the dispersion, (3) the concentration of sodium hydroxide used to disperse it, and (4) the action of trichloroacetate ion to prevent gelation. A method is described for preparing nongelling, tacky dispersions of cottonseed protein in which trichloroacetate ion has been used to prevent gelation.

Proteinaceous fiber making method. Francis C. Atwood (to Natl. Dairy Products Corp.). Can. P. 444 864, Nov. 4, 1947.

In producing a synthetic proteinaceous fiber, the casein dispersion is prepared by mixing and heating casein to a temperature of 170° to 190°F with sufficient water and alkali to impart a relatively high viscosity to the dispersion and a pH value of 6 to 7, the alkali consisting essentially of an alkali metal hydroxide. The dispersion is then quickly cooled and deaerated and is spun at a reduced temperature in a deaerated form. An acid coagulating bath containing a mineral tanning age and having a pH value of 1.3 to 2.0 may be used. The fiber thus produced may be further treated in a solution containing formaldehyde.

Synthetic proteinaceous fiber treating process. Francis C. Atwood (to Natl. Dairy Products Corp.). Can. P. 444 865, Nov. 4, 1947.

A process of treating a synthetically formed protein-base fiber produced by shaping into fiber form an alkali-soluble acid-coagulable protein comprising casein and treating it with formaldehyde, which process comprises treating said fiber while having a moisture content of about 3 to 6% in a treating liquid at a temperature within the range

of 150° to 225°F., said treating liquid comprising an organic solvent inert with reference to the fiber and the ingredients contained in the liquid and containing about 5 to 15% acetic anhydride and about 5 to 7% of acetic acid, the temperature and the amount of acetic anhydride within the above ranges being selected with reference to each other and to the fiber being treated so as to impart more desirable chemical properties to the fiber without undue yellowing thereof, and removing the fiber from the treating liquid having absorbed therein substantially the amount of acetic acid formed by reaction of the moisture in the fiber with the acetic anhydride in the treating liquid as a result of the specified moisture content of the fiber and the acid content of the bath.

Terylene, the new British fiber. Wm. H. Cody. *Am. Dyestuff Reptr. 37*, 699, 702 (Oct. 18, 1948).

The chemical structure, preparation, and physical and chemical properties of Terylene are reviewed briefly.
WPU,Jr.

Filaments and fibers manufacture. Hale Cowling (to Am. Viscose Corp.). Can. P. 444 600, Oct. 21, 1947.

Artificial filaments, films, and the like, are produced by extruding a solution of viscose containing a small proportion of an ethylene oxide polymer having a molecular weight of 6,000-8,400 through a jet into a precipitating medium which may be aqueous, or an aqueous acid containing a zinc salt.

Manufacture of fibers, etc. Donald Finlayson, Richard G. Perry & Henry Dreyfus (to Henry Dreyfus). Can. P. 444 780, Oct. 28, 1947.

Process for the manufacture of improved textile materials which comprises impregnating textile materials of regenerated cellulose with a water resistant ester or ether of cellulose and treating the impregnated material with an etherifying agent or esterifying agent containing a long aliphatic chain under such conditions as to form on said material an ether or ester of cellulose containing said long aliphatic chain.

On the suitability of cellulose for viscose manufacture. Theodor Kleinert & Viktor Mössmer, Lenzinzer Zellwolle- und Papierfabrik A. G. *Swensk Papperstidning 51*, 541-5 (Nov. 30, 1948); *in German.*

The method of Klauditz and Berlin to determine the reactivity of cellulose was applied to pine and beech cellulose produced under known technical

conditions. It was found that the filtrability of viscose produced from these pulps passed through a maximum, the position of which was dependent on the amount of carbon disulphide added. This result, however, allowed only general conclusions in regard to the commercial suitability of the cellulose. The filter clogging depends upon swelling substances, which remain on the filter when commercial viscose filters poorly. These substances are largely dispersed upon dilution with water and appear to consist of high molecular xanthogenated parts of the original material used, whereby biological structures are retained. On the other hand, undissolved residues of fiber, normally occurring in commercial viscose, affect the filtration but slightly. Macroinhomogeneities in the commercial viscose exist due to the fact that insoluble highly swelled gels of cellulose xanthogenate occur besides the main part of soluble compounds. The difficulty experienced in filtering common viscoses for spinning are caused by compounds having a degree of polymerization above 700. The adaptability of cellulosic material for viscose manufacture does not only depend upon the distribution of the chain length in the original material but also upon changes in the distribution of chain lengths in the course of processing, particularly during the pre-ripening of the alkali cellulose.

Report on machinery for the manufacture of viscose and spinning of continuous filament and staple fibre yarn in Germany. R. A. Gillespy. BIOS Final Rept. 454, Item 31. Oct. 1945. 31 pp. PB L 77709. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8, 1947). Microfilm $1.00, Photostat $3.00

This report contains the description of machinery for the manufacture of viscose and spinning of continuous filament and staple fiber yarn used in eight large German factories. Drawings and photographs included.

Swelling and floating tendency of pulp sheets at steeping in the viscose process. E. Ringström & N. H. Apler, Uddeholms Aktiebolag. *Svensk Papperstidning 51*, 501-8 (Nov. 15, 1948); *in English.*

Difficulties in the steeping process, e.g. brown spots and floating of the sheets in the press, adversely affect the resulting alkali cellulose by causing a low content of caustic soda and a high content of hemi-cellulose. Both of these conditions have a detrimental effect on subsequent processing. Investigations, which are described, into the steeping process indicate that the speed at which

lye is introduced into the press is important in producing highly uniform alkali cellulose; a minimum of swelling and floating tendency occurred when the lye was introduced at speeds higher than those normally used in mill practice. On the basis of this investigation, it seems possible to save time and increase production in the steeping departments of viscose mills.

Thread advancing reel. Wm. H. Furness (to Am. Viscose Corp.). USP 2 456 120, Dec. 14, 1948.

Rayon yarn, as spun, is laid on a cylindrical reel at the rate of about 100 meters per min. forming a helix. The reel rotates at about 3 r.p.m., so that the yarn advances slowly along the cylinder. Various treating liquids are applied to the yarn on the reel. The construction and operation of the device makes it possible to perform all of the treatments required in the production of viscose or cuprammonium rayon and to keep the treatment liquids separate.

YARN PRODUCTION B

Modern trends in carpet yarn manufacturing. Stillman B. Hyde. *Whitin Review*, 10-8 (Nov. 1948).

A review is given of recent improvements in the carding, spinning, twisting, reeling, and dressing operations.

Process for producing strips or other articles from fibrous or plastic materials. I. G. Farbenindustrie A. G. Ger. patent application I 76670 IVc/39b, Jan. 20, 1944. PB L 64390; frames 9904-9908. *Bibl. Sci. Ind. Reports 6*, 187 (July 11, 1947). Enlargement print $1.00; *in German.*

Spinning cotton, rayon and wool on the "American System". R. J. McConnell. *Whitin Review*, 19-23 (Nov. 1948).

Considerations involved in spinning cotton, rayon, and wool on the American System are reviewed in an address.

Spinning rayon on cotton system. Anon. *Am. Wool Cotton Reptr. 62*, 17-18, 54 (Dec. 23, 1948).

The spinning and processing of rayon on the cotton system are discussed with details of winding, warping, twisting, slashing, weaving, and dyeing.

Wright Spinning Co. Anon. *Saco-Lowell Bull. 20*, 1-13 (July, 1948).

The Saco-Lowell equipment for the manufacture of worsted yarn, installed at the Wright Spinning Co., Westbrook, Maine, is described. The features of the system, which is a straight-line process, are

illustrated by numerous photographs, and an outline of the organization of the system is given.

Yarn and thread manufacture from synthetic fibers on the flax, hemp, and jute equipment. D. Buchan Gibb. *Rayon & Syn. Tex. 29*, 51-2 (Dec. 1948).

The experience of the author in solving processing problems is described and discussed. The topics covered include carding, drawing and doubling, roving, and spinning.

RAYON STAPLE IN THE COTTON INDUSTRY. London, Courtaulds Ltd., 1948. 65 pp. Price: Not given.

This is a fourth and revised edition of a technical publication first issued by Courtaulds, Limited, in 1934 called *Fibro in the Cotton Industry*. It deals mainly with *Fibro* (Courtaulds' production of viscose rayon staple) as that accounts for the great bulk of the total United Kingdom output of rayon staple at the present time. It also deals with other types of rayon staple developed in the past few years though only in process of being brought into commercial production at the time of writing. The purpose of *Rayon Staple in the Cotton Industry* is to meet requests from cotton spinners, their staffs, technical students and others for information in relatively brief form.—Introduction.

SACO-LOWELL SHOPS TEXTILE MACHINERY; Technical information relating to the various machines manufactured by Saco-Lowell Shops for the textile industry. Boston, Mass., Saco-Lowell Shops, 1948. 189 pp. Price: Not given.

(Cover title: Saco-Lowell Hand-book, Vol. 4; Engineering and technical data pertaining to the manufacture of cotton and rayon yarn.) In this fourth of our Hand Books of textile machinery manufactured by the Saco-Lowell Shops we have collected and arranged in a form for ready and convenient use a series of tables and helpful data which we are sure will prove useful to the management and technicians of mills verywhere. Much of the material in this section has been collected and prepared by the Engineering and Research staff of the Saco-Lowell Shops. Some of it has been taken from other sources in which case due credit has been given.—Introduction.

Fiber preparation B 1

New opening room at Naumkeag. Anon. *Saco-Lowell Bull. 20*, 24-30 (July, 1948).

Features of the opening room at Naumkeag are described and illustrated by photographs and dia-

grams. Two floors are used for blending 140 bales of cotton at a time; 16 cleaning and blending feeders are used. Units are synchronized by means of electrical controls in order to maintain a regulated flow of stock, and to keep the equipment in operation at least 90% of the time.

New rotary fiber cutter. Anon. *Textile Industries 112,* 184-5 (Dec. 1948).

A brief illustrated description is given of a new rotary fiber cutter which is designed to cut rayon, silk, flax, jute, wool, and cotton in lengths required for flock mixed spinning and other special processes.

New Saco-Lowell vertical opener. Anon. *Saco-Lowell Bull. 20,* 35-43 (July, 1948).

The operation and construction of the Saco-Lowell vertical opener are described and illustrated; a brief note on the installation is also given.

Carding and combing B 2

Alabama Operating Executives' answers to carding questions. Anon. *Am. Wool Cotton Reptr. 62,* 13-14 (Dec. 2, 1948).

A report on the discussion of various carding questions at the fall meeting of the Alabama Textile Operating Executives is given. Topics include methods of opening cotton, use of continuous card strippers, automatic conveyors, return air systems in opening and picking rooms, piecing runouts, and roving frame maintenance.

Continuous stripper. J. R. Dunkerley, Dominion Textile Co. Ltd. *Textile Industries 112,* 106-7 (Dec. 1948).

A brief illustrated description of the continuous stripper is given. Results of carding tests using the stripper are claimed to have given more effective carding results and a cleaner sliver.

Cotton opening and cleaning problems. Anon. *Am. Wool Cotton Reptr. 62,* 13-14 (Dec. 9, 1948).

Problems on continuous strippers, carding, drawing, static eliminators, and new developments, discussed at the Eastern Carolina division of the Southern Textile Association, are reviewed.

Feed plate. John L. Fonville & Alexander E. Barneycastle (to Celanese Corp. of Am.). USP 2 455 412, Dec. 7, 1948.

When carded on a conventional card, the longer synthetic staple fibers produce an uneven web due to the bunching of the staple fibers at the feed plate. This difficulty is overcome by use of a feed plate having upper and bottom plane surfaces

adapted to be supported on the carding machine, and having a nose extending above and below the plane surfaces, the entire surface of the nose being adjacent to the lickerin and concentric with it. The accumulation of fibers between the nose and the lickerin is thereby prevented.

Modern practice in woollen carding. J. W. Radcliffe, Henry Booth & Sons Ltd. *Textile Mfr. 74,* 156-60 (Apr. 1948).

The merits of the Continental system are compared with those of the English system. The joiner has the advantage of a reduction of carding parts, consumes less floor space, and has all workings parts covered. The English system, on the other hand, has developed into a maze of senseless devices and mechanical build-ups. However, by the adoption of certain features of the Continental card, a modern English set of cards can be made more fluid in its general uses than is possible with the Continental. Such a set might be called semi-Continental.

Redeployment in the cardroom. Anon. *Textile Mfr. 74,* 152-4 (Apr. 1948).

This is a summary of the principal changes made in processing and labor organization and the broad results obtained in terms of total production, output per worker, wages and labor costs in the Musgrave Mill Experiment at Bolton, England. It is from a report by the Labour Department of the Cotton Board, Midland Bank Building, King St., Manchester, England.

Whitin's new model comber. Anon. *Am. Wool Cotton Reptr. 62,* 15-16 (Dec. 2, 1948).

The new Whitin high-speed comber is claimed to give high productivity and steady maintenance of good quality sliver. Features of the new machine include a detaching roll motion, spring weighting, redesigned nipper frame and top comb, etc.

Drafting and roving B 3

Electric stop motion. Anon. *Saco-Lowell Bull. 20,* 33-4 (July, 1948).

An electric stop motion for the Saco-Lowell FS-2 Roving Frame is described and illustrated. An 18-volt circuit is used to actuate the stop motion which operates when contact is made by one of the small wires on the underclearer with the one forming the other terminal. A signal light operates on a 110-volt circuit.

Method of making textile fiber drafting aprons. Richard A. Garret (to Armstrong Cork Co.). USP 2 455 362, Dec. 7, 1948.

Textile fiber drafting elements are made by applying a base layer of resilient composition to a mandrel in the conventional manner and treating the cord with a non-volatile plasticizing agent for the composition of the base layer, applying the reinforcing cord to the base layer with the plasticizing agent passing from the cord to the base layer to soften it and permit proper embedding of the cord therein. Sufficient plasticizer is applied to permit bleeding or migrating from the cord into the base layer to cause the surface between the cords to become tacky. An outer covering is applied over the cord, the residual plasticizer causing the cord to become embedded in the outer layer upon application of slight pressure. The tackiness of the base layer exposed between the convolutions of the cord serves to hold the outer layer in proper position for wrapping.

New development in controlled high drafting. Anon. *Textile Mfr. 74*, 115 (Mar. 1948).

This is a description of the high draft mechanism described in Brit. P. 590 746 (Ramon Balmes Solanus, Barcelona, Spain).

Spinning B 4

Alabama Operating Executives answer spinning questions. Anon. *Am. Wool Cotton Reptr. 62*, 17-18, 29 (Dec. 16, 1948).

Spinning problems, concerning anti-friction spindles, wild yarn, scheduled doffing, humidity in the spinning room, roller-picker's work, and controlling roving and yarn weights, are discussed in a series of questions and answers by the Alabama Operating Executives at a meeting.

American System comes of age in South. Anon. *Am. Wool Cotton Reptr. 62*, 59, 61, 63 (Dec. 16, 1948).

The development of the American System for spinning worsted yarns and its use today in the South are discussed.

Concerning the theory and practice of spinning. W. H. Westenberg. Vezelinstituut, Delft, Netherlands, V. I. Pamphlet No. 2 (Sept. 1947); *in Dutch.*

The "law of unevenness", which expresses the coefficient of variation as 100 dixided by the number of fibers in the cross-section, is shown to be valid for a hypothetical spun-rayon yarn, but, in practice, the coefficients of variation appear to be much higher than predicted by the formula. The drafting wave is a possible cause of this difference. Laps and slivers were found to be surprisingly irregular.

Monarch Mills use handy bobbin lifter. Randall Wilson. *Textile Industries 112*, 100-1 (Dec. 1948).

Greater doffing efficiency with a reduction of processed waste or tailings may be obtained by the use of a new bobbin lifter on spinning frames. The lifter consists of a rail extending from one end of the spindle rail to the other with lifter fingers on this rail, spaced one to each spindle.

New plastic nylon flyer block. Anon. *Rayon & Syn. Tex. 29*, 77 (Dec. 1948).

A brief note describes the features of a flyer block made of nylon by injection molding. The use of nylon makes possible speeds as high as 15,000 rpm without requiring lubrication. The flyer is assembled by springing the looped wire into grooves molded in the block; the wires may be readily replaced when worn out. The flyer blocks are presently available in 3 sizes and 2 colors.

New ring doubling frame for fine and medium counts. Anon. *Textile Industries 112*, 187, 189 (Dec. 1948).

Features of a new ring doubling frame, which is capable of producing fine and medium counts of regular twists at high speeds, are noted.

New spindle design promises many savings. Anon. *Am. Wool Cotton Reptr. 62*, 15-16, 25-6 (Dec. 23, 1948).

The construction and component parts of the New Era spindle (Saco-Lowell's) are described and illustrated in detail. The new spindle differs from the ordinary spindle in the use of ball bearings and their position. There are 2 models of the Saco-Lowell spindle: the rubber-mounted type and the oil cushion type, which differ in the manner in which they are secured to the spindle rail.

Spindle brake mechanism. Lester W. Pray (to Saco-Lowell Shops). USP 2 457 089, Dec. 21, 1948.

A spindle brake mechanism comprises a spindle blade with a whirl provided with a downwardly extending circular skirt; a fulcrumed lever at the forward side of the spindle has an end portion positioned inside the skirt of the whirl, and a brake shoe which is released by pressing inwardly on the lever. A spring holds the lever in the outward position, and the brake shoe out of contact with the inner surface of the skirt when the mechanism is in inoperative position.

Spinning flyers. Jonathan Hattersley & Son Ltd. Australian P. 129 378, Aug. 16, 1946.

A flyer for spinning and like machines comprises

a central driving socket, a transverse top member formed in its middle portion with a bottom portion and 2 upstanding marginal ribs extending on both sides of the said socket; and 2 tubular legs. The transverse member and the legs are made in one piece from a single blank. A cold pressing process for making the flyer is also claimed.

Tapered paper warp spinning bobbins—"New Seat". Anon. *Saco-Lowell Bull. 20*, 15-7 (July, 1948).

The difficulties experienced in doffing paper bobbins on a sleeve-type tip-suspension spindle have been overcome by the devlopment of the "New Seat" bobbins which are easily doffed. Contact at the tip of the spindle with the new bobbin is approximately 1/8" instead of the 5/8" required by the old type bobbins. The seat is formed and polished inside the bobbin and assures that every bobbin will fit at the same point. Numerous tests have been conducted with the new bobbin; spindle wear was found to be negligible.

Worsted roving, spinning and twisting machinery; the P. S. C. system: an important advance. *Fibres 9*, 392-4 (Oct. 1948).

The features of the Prince-Smith Centrifugal System of spinning are reviewed.

Winding and spooling B 5

Bobbin sorting apparatus. Louis M. Cotchett (to Foster Machine Co.). Can. P. 444 840, Nov. 4, 1947.

A bobbin sorting apparatus comprises a conveying means for carrying bobbins along a predetermined path, and a feeler means for detecting residual yarn on bobbins which removes from the predetermined path those bobbins having residual yarn.

Czech automatic pirn winder. A Special Correspondent. *Textile Mfr. 74*, 171-3, 180 (Apr. 1948).

Features of the Zbrojovka spindleless automatic pirn winder are described and illustrated with diagrams. Bobbin speeds in excess of 10,000 rpm are feasible if the yarn strength and tension permit it, and controlled tension is maintained. Settings and adjustments for taper, diameter, traverse, bunch, and length of bobbin are easily made.

New Czech vertical weft winder. A Special Correspondent. *Textile Mfr. 74*, 425-6 (Sept. 1948).

A vertical spindle weft winder, manufactured by Zbrojovka, Brno (Czechoslovakia), is described and illustrated by photographs and diagrams.

New high-speed nylon re-drawing machine. Anon. *Textile Mfr. 74*, 423-4 (Sept. 1948).

A new high-speed re-drawing machine, for nylon, features re-drawing overend from stationary packages; revolving skein carrier brackets may be used on the machine but will greatly reduce the speed. The machine can be arranged to wind conical bobbins, if desired. Ernest Scragg & Sons Ltd., manufacture the machine.

Re-winding gear for bobbins and other yarn carriers. Frederick S. Perry & Jos. A. Huskinson. Can. P. 444 386, Oct. 7, 1947.

This invention provides a re-winding gear for a plurality of yarn carriers mounted for rotation on a creel comprising supports extending upwardly from the creel, a frame carried above the creel by said supports, rails on the frame, a carriage on each of said rails, a flexible and elastic suspension member on each of said carriages, and a power-driven re-winder unit attached to each of said suspension members.

Thread feed arresting device. John T. Gordon & Raymond E. Solliday (to Wingfoot Corp.). USP 2 456 406, Dec. 14, 1948.

A thread feed arresting device for use with a conventional doubler-twister is provided by this invention. The several individual threads being plied together are severed simultaneously by a severing means actuated when any one thread is broken. This is accomplished by a weighted lever arm supported by each individual thread for actuating a trip means upon interruption of the thread supply. The trip means in turn releases the severing means.

Winding machine. Ernest R. Swanson & Chas. H. Jones (to Universal Winding Co.). Can. P. 446 662, Feb. 10, 1948.

In a winding machine, a rotary winding spindle, a reciprocable member, means for reciprocating said member, a thread guide reciprocated by said member, means for shifting the thread guide relatively of the member to alternately increase and diminsh the length of traverse stroke of the thread guide from minimum to maximum and maximum to minimum respectively again during recurring cycles in the reciprocation thereof, and means for controlling the last-named means to progressively shorten the maxima and minima traverse strokes of the thread guide and the strokes intervening therebetween during successive cycles throughout the winding of a package.

Winding machine. Robt. E. Morton (to Universal

Winding Co.). Can. P. 446 663, Feb. 10, 1948. See USP 2 391 472, Dec. 25, 1945 (TTD: *3*, 64).

Winding machines—principles and practices. Jesse W. Stribling, Universal Winding Co. *Textile Industries 112*, 140-2 144 (Apr. 1948); 116, 119, 121, 123 (May, 1948); 114, 116 ,118, 121, 123 (June, 1948); 120A-C, 123, 125, 127 (Aug. 1948); 167, 169, 171, 175, 177 (Sept. 1948); 131, 133, 135, 137 (Oct. 1948); 209, 211, 213, 271, 273 (Nov. 1948); 136, 139, 141 (Dec. 1948).

This is a continuation of the series of articles dealing with the No. 50 precision winder in considerable detail. The numerous attachments and their operation are also considered.

Yarn winding machine. U. S. Textile Machine Co. Australian P. 129 537, Feb. 21, 1946.

For winding headless yarn packages a spool is rotatably supported on a movable mounting, a yarn feeding element being arranged to contactingly move along the yarn receiving surface of the spool and mounted on a carriage traveling on a track, a cam device with 2 cams tilting the track in accordance with the amount of yarn wound onto the spool. The tilting at the track reduces reciprocation of the carriage and yarn feeding element.

Yarn winding machine. Louis M. Cotchett, Lester Campbell & Ferdinand F. Stange (to Foster Machine Co.). Can. P. 444 839, Nov. 4, 1947. See USP 2 407 366, Jan. 19, 1943. (TTD: *3*, 446).

Yarn processing B 6

Cellulosic fibres treatment. Howard M. Buckwalter (to Dominion Rubber Co. Ltd.). Can. P. 444 524, Oct. 14, 1947.

See USP 2 422 078, June 10, 1947 (TTD *4*, 255).

Heavy duty slub catcher for coarse yarns. Anon. *Textile Industries 112*, 147 (Dec. 1948).

An illustrated description is given of a heavy duty slub catcher that is applicable to a variety of coarse yarns to prevent knots and slubs from entering the finished thread.

Rope of regenerated cellulose. Donald Finlayson, Richard G. Perry & Henry Dreyfus (to Henry Dreyfus). Can. P. 444 781, Oct. 28, 1947.

Process is given for improving the properties of rope composed of filaments of regenerated cellulose of tenacity at least 2 grams per denier, which comprises impregnating said rope with a solution of a derivative of cellulose of low water-absorption, said derivative being selected from the class consisting of ethers of cellulose and cellulose esters of higher homologues of acetic acid, in a non-aqueous liquid at a temperature of at least 50°C.

Thermal-stretching apparatus for yarn. Rollin F. Conaway (to E. I. du Pont de Nemours & Co.). USP 2 456 384, Dec. 14, 1948.

In the heat stretching of yarns to increase tensile strength in a relatively long and narrow stetching cell wherein the yarn is subjected to dry heat, the accumulation of charges of static electricity often result in detrimental effects on the yarn by causing the yarn to swirl or contact the sides of the heated tube. This invention relates to the use of small tubes at each end of the larger heated tube through which yarn to be stretched is run. The small tubes act as guides and prevent the yarn's touching the side of the heater tube.
ECH

Thread guide. Victor E. Gonsalves (to Am. Enka Corp.). USP 2 448 217, Aug. 31, 1948.

A thread guide of the non-rotatable type which imparts minimum drag to a thread or yarn is described. The thread or yarn is restrained against displacement in an arc in excess of 180°, the thread being led over a guide roll, up through a hook type guide and down and over another guide roll. The hook type guide is attached to a material permeable to a magnetic field (e.g. nickel). This core is mounted to allow free movement through a coil, the ends of which are connected to a low frequency source of alternating current. When the coil is energized, an alternating magnetic field is created causing the core and attached thread guide to oscillate vertically. It was found that yarn friction is greatly reduced if the core is oscillated rapidly.
CCJ

Yarn treating apparatus. Ira V. Hitt (to E. I. du Pont de Nemours & Co.). USP 2 455 173, Nov. 30, 1948.

An apparatus for the hot stretching of polyacrylonitrile filaments and yarns comprises a series of rollers, one or more of which is heated, the rollers being so disposed as to feed yarns, without slippage, under closely controlled low tension to stretching rollers; the yarn, while still heated, passes from the stretching rollers to additional rollers rotating at a reduced speed where the yarn is relaxed and permitted to shrink. The yarn is then collected on pirns or bobbins. By suitable heating and arrangement of the rollers, heat is quickly imparted to the yarn as it passes

around the respective rollers, thereby permitting uniform stretching and relaxing of the yarn. A minimum of pressure is exerted against the yarn as it passes between rollers to and from the stretching zone so as to minimize mechanical damage to the yarn, while at the same time preventing slippage and wandering across the rollers.

Special yarns B 7

Tensioned roving and method of forming same. Russell B. Newton (to Dan River Mills, Inc.). USP 2 454 830, Nov. 30, 1948.

A roving given to 2 to 8 tpi is impregnated with a bonding material, stretched almost to its breaking point and set to produce a final product without spinning. The product so produced may be coated with latex, or the like, to form a smooth surface. As a result of this treatment, tensile strength is increased at least 50%, and the reduction in residual stretch is less than 3% under a 10-lb. load. This tensioned roving is comparable in every way to tensioned plied yarn of the same diameter, but without the wear-producing plies.

Yarn products B 8

Cotton versus rayon in tires. E. W. S. Calkins, U. S. Rubber Co. *Rayon & Syn. Tex. 29,* 67-8 (Dec. 1948).

The advantages of rayon in making tire cord are reviewed and discussed. It is predicted that rayon will replace cotton for this purpose because it is more economical at present prices; however, within the next few years rubber companies will continue to use considerable amounts of cotton.

Flexible composite rope. Richard F. Warren, Jr. Can. P. 446 244, Jan. 20, 1948.

In a rope, a main core, a plurality of ropes laid helically about said main core, each of said ropes including a rope core and strands of metal and strands of plastic material laid helically about said rope core, a plurality of elements comprising each of said strands, each of said elements helically disposed in its strand, said elements, strands and ropes preformed into helices whereby to lie in neutral condition in said strands, ropes and about said main core.

Hot-stretching of nylon cords—equipment and process. Technical Service Bull. Nylon Div., E. I. du Pont de Nemours & Co. *Rayon & Syn. Tex. 29,* 73-4 (Dec. 1948).

Experiments have shown that subjecting nylon cord to hot-stretching will result in an increase

in tenacity, a higher modulus of stretch, and a decrease in breaking elongation. The final product is stretched, rather than the components going into the product as stretching the final product increases the modulus by a greater amount than does stretching the component parts. The equipment and techniques employed in hot-stretching nylon cord are described.

Nylon goes fishing. Anon. *Du Pont Mag. 42,* 3-4 (Nov.-Dec. 1948).

The use of nylon fishing nets and the properties of the fiber are described briefly. Statements by commercial fishermen who have used the nets are included. The great strength of nylon, its light weight, durability and the fact that the nets do not require drying after use makes it particularly suitable for this application.

There's no need to hang by a thread. Stephen A. Reed, Plymouth Cordage Co. *Safety Eng. 96,* 24, 28-29, 34, 36, 38, 66 (Oct. 1948).

This article describes the proper use and maintenance of rope made from manila, sisal, Henneguen, and synthetic fibers. Rope construction is described, and design calculations for rope used in tackle blocks are given. After a discussion of reasons for wear and weakening of ropes, a set of rules for rope maintenance is presented.

Yarn applications B 9

Rubber thread and its application to textiles. R. G. James, Lastex Yarn and Lactron Thread Ltd. *Textile Mfr. 74,* 215-9 (May, 1948).

The developments in the manufacture of cut rubber and latex rubber threads are reviewed. The properties of rubber threads are noted, and a detailed description is given of some of the many applications.

Yarn testing and numbering B 10

Numbering textile fibers and filaments. Squire Blackshaw. *Can. Textile J. 65,* 58, 59 (Nov. 26, 1948).

Two proposed numbering systems, the Integral and the Tex, are discussed in relation to the denier system. It is pointed out that denier size numbers are too small while Tex numbers are too large. The Integral size numbers place commercial fibers and filaments within the range of 2-figure numbers.

DIE NUMERIERUN UND TITRIERUNG VON GARNEN UND ZWIRNEN. Hans Battenschlag. Stuttgart,

Konradin-Verlag–. Robert Kohlhammer. 91 pp. Price: Not given.

The whole subject is a lengthy one and though the author deals with it descriptively, rather than critically, he does well to get it into 91 pages, whilst giving, in the 47 illustrations a generous number of nomograms, and scales, as well as the usual conversion tables and other data such as standard moisture regains, metric equivalents and reciprocals. Not the least valuable is the reprint of the German standard DIN/TEX 900 with its logical system of notation, for ply and cabled threads, of twist directions (and turns per metre if needed). There is no mention of GREX but the metric system gets due attention. Throughout, as in the title, number refers to the length-per-unit-weight systems, titre to the weight-per-unit length. —*Textile Mfr. 74*, 359 (Aug. 1948).

FABRIC PRODUCTION C

Processing problems discussed at Durham. Anon. *Textile Industries 112*, 143, 145 (Dec. 1948).

Opening, cleaning, slashing, and weaving problems, discussed at the fall meeting of the Eastern Carolina Division of the Southern Textile Association, are reviewed.

Use of tension meters in textile mills. Erwin J. Saxl, Saxl Instrument Co. *Can. Textile J. 65*, 52, 54, 69 (Nov. 12, 1948).

Tension meters, their method of operation, and construction are discussed. Suggestions are given for measuring warp tension and testing and adjusting shuttle tension.

ENCYCLOPEDIA OF COTTON FABRICS. Walter Hough. Altrincham, John Sherrat & Son, 1948. Price: 5/–.

The sixth edition of this book gives brief details of nearly 300 cotton fabrics (14 more than the fifth edition) and has chapters on calculations, single and folded [plied] yarns, cloth analysis, cloth construction, testing, and a brief history of weaving. —*Textile Mfr. 74*, 277 (June, 1948).

Yarn preparation C 1

Control of tension in warping. D. R. H. Williams. *Textile Mfr. 74*, 104-5 (Mar. 1948).

This is a brief account of tests carried out to ascertain the variation in tension in threads coming off cheeses on an upright creel, and threads coming through the tensioning apparatus of a Holt creel.

Electronically controlled warper. E. S. Lammers, Westinghouse Electric Corp., & J. C. Bodansky, Cocker Machine & Foundry Co. *Textile Industries 112*, 89-91 (Dec. 1948).

Higher speeds, wide speed range, soft acceleration in the drive, close speed regulation, and finger-tip control are features of an electronically driven warper that are discussed. The warper is of simplified design and takes up a minimum of floor space. Firm, uniform warp beams are produced with no evidence of scuffing or stretching of the warped yarn.

Georgia mill men show interest in hot air warp driers. Anon. *Textile Industries 112*, 127, 129, 131, 133, 135 (Dec. 1948).

A report is given on the discussion of slashing problems and hot air driers at the fall meeting of the Textile Operating Executives of Georgia.

Slasher room controls feature rugged construction. Anon. *Textile Industries 112*, 181 (Dec. 1948).

Size box controls, including a temperature controller and a controller for constant size level, cylinder temperature controls, and size cooking and storage controls are briefly discussed.

Stop motion. Brian Plunkett (to Camille Dreyfus). Can. P. 446 677, Feb. 10, 1948.

In a textile device for operating on a traveling warp of yarns, means for stopping the travel of said warp upon breakage of a yarn thereof, said means comprising a pair of vessels adapted to hold electrolyte, means in each of said vessels adapted to be in contact with said electrolyte and to be wetted thereby, a switch in a stop motion circuit, and an electrical connection between said vessels and said switch, the construction and arrangement being such that broken yarn upon coming into contact with said electrolyte-wetted means is wetted with electrolyte, thus closing the circuit operating the switch to effect a closing of the stop motion circuit and thereby halt the operation of the textile device.

Weaving C 2

Bobbin control for battery looms. Geo. F. Bahan. USP 2 455 463, Dec. 7, 1948.

A bobbin control for battery looms is so designed and positioned that it eliminates vibration of the battery and the bobbin about to be transferred, and prevents all the bobbins from rotating, thus preventing breaking of the filling extending from the bobbins. The butt of the bobbin ready for transfer is held securely in its pocket in the rotary

battery disc, and the metallic rings on the bobbin butt are engaged; the bobbin is thus guided and guarded during transfer into the shuttle.

Bobbin magazine for weft replenishing looms. Richard G. Turner (to Crompton & Knowles Loom Works). USP 2 455 149, Nov. 30, 1948.

This invention provides a bobbin magazine with readily adjustable guideways for both the butts and tips of the bobbins so that by a simple manual operation the weaver can adjust the widths of the guideways to a condition which will enable the bobbins to lie substantially horizontally and therefore feed downwardly toward transfer position without falling out of the magazine. Thus, if several partly filled bobbins are in the magazine the tip guideways can be made narrow to raise the tips and prevent objectionable tilting of the upper bobbins. The guideways are readily adjustable by means of yielding locks which can be moved quickly and easily to alter the widths of the guideways.

C. & K.'s new Jacquard. Anon. *Am. Wool Cotton Reptr. 62,* 16 (Dec. 9, 1948. **C. & K.'s high speed Jacquard.** Anon. *Can. Textile J. 65,* 54, 69 (Dec. 10, 1948).

A double cylinder, a new type drive with an independent cylinder drive, Olite bronze bushings, etc., are among the features of a new Jacquard loom. The Jacquard is capable of weaving highly styled fabrics with wide design repeats at high speeds.

Checking the loom. W. Middlebrook. *Textile Mfr. 74,* 101-3, 113 (Mar. 1948).

Careful inspection of the loom before weaving a new warp improves efficiency by correcting the causes of many faults. This article discusses the preliminary check-up, particularly with reference to pickers and shuttles.

Coupling up the heald [heddle] shafts. W. Middlebrook, Brockelhurst Whiston Amalgamated Ltd. *Textile Mfr. 74,* 3-5 (Jan. 1948).

With any cam shedding motion, the first step to take before coupling up the heddles is to bring the lay forward until the cams are level. The Continental shedding motion and the cross-rod system are also discussed.

Driving control for Axminster looms. Clarence R. Kronoff & Victor F. Sepavich (to Crompton & Knowles Loom Works). USP 2 455 502, Dec. 7, 1948.

This patent covers the rotary features for the speed control used in connection with the driving

control described in USP 2 455 504 (see also USP 2 455 403).

Driving control for Axminster looms. Clarence R. Kronoff & Victor F. Sepavich (to Crompton & Knowles Loom Works). USP 2 455 503, Dec. 7, 1948.

A shipper mechanism in the form of a bar across the front of an Axminster loom is so constructed that it can be moved longitudinally to start and stop the motor, and can be moved angularly on its axis to control motor speed. This arrangement permits the weaver to vary the speed of the loom from any point along the length of the shipper bar. (See also USP 2 455 502 and 2 455 504).

Driving control for Axminster looms. Clarence R. Kronoff & Victor F. Sepavich (to Crompton & Knowles Loom Works). USP 2 455 504, Dec. 7, 1948.

In an Axminster loom, an auxiliary handle is provided by which the shipper bar may be moved when the weaver is near the weft tension arm. A jogging switch is also provided to cause running of the motor when the loom has been stopped by a stop motion switch. (See also USP 2 455 502 and 2 455 403).

Fine pitch double lift, double cylinder Jacquard. Tuner. *Textile Mfr. 74,* 19-20 (Jan. 1948).

This is an outline and brief description of special features of the machine and covers the framework and griffes, hooks and needles, the cylinders, the eccentrics, reversing mechanism, etc.

Gaiting dobby warps. W. Middlebrook. *Textile Mfr. 74,* 261-3 (June, 1948).

Examining the heddles, arranging the cords, springs and couplings, and timing are considered in this discussion.

Gaiting Jacquard warps. W. Middlebrook. *Textile Mfr. 74,* 301-2 (July, 1948).

Included in this discussion are hooking up the single life Jacquard harness and positioning the warp for weaving. Suggestions are given for eliminating mis-lifting or stitching.

Harness motion. Edward C. Nichols (to Draper Corp.). USP 2 455 263, Nov. 30, 1948.

A harness spring mechanism by which spring tension may be varied within relatively wide limits comprises a flat, spiral, clock-type spring; one end of the spring is anchored and the other end, which is hooked, fits into slots in the hub of a sheave. The tension may be varied by inserting the hooked end into the proper slot. The harness is connected

to the device by means of a strap and further variations of tension may be obtained by adjustment of the strap.

Interlacing or crossed twills. W. Haigh. *Textile Mfr. 74*, 229-33 (May, 1948).

A new method is described which will be of use to many designers in that it offers greater scope for producing novel effects.

Lease rods. W. Middlebrook, Brockelhurst Whiston Amalgamated. *Textile Mfr. 74*, 58-60 (Feb. 1948).

In this discussion the care of lease rods, inserting the rods, the warp line, and late and early shedding are considered. It is pointed out that lease rods need to be cared for just as much as back rollers or shuttles, or anything else that is in constant contact with the warp yarn.

Loom bumper. Mack H. Holcombe. USP 2 455 418, Dec. 7, 1948.

A picker stick bumper comprises a cast iron body covered with leather. One end of the body is covered by a number of layers of leather and the body is secured to the loom in such position that the end covered by the several layers of leather is struck by the picker stick at the end of its movement. The strips of leather may be easily replaced.

Loom picking mechanism. T. Hindle. Australian P. 129 535, Jan. 9, 1946.

Hydraulically operated mechanism comprises a double acting piston actuating a picking lever and operated by piston valves adapted to direct fluid pressure alternately to each side of the piston under the control of a cam operated pick timing valve.

Loom shuttle swell. Samuel Macro. Can. P. 444 489, Oct. 14, 1947.

This invention provides a loom shuttle binder, a support, and links which pivotally attach the binder to the support. The pivots which connect the links to the binder are situated so that, when the binder is forced back by a shuttle entering the box, the binder moves in a direction towards the shuttle box, thereby increasing the braking pressure that the binder exerts on the shuttle. When the shuttle leaves the shuttle box, the binder is free to move in the same direction as the outgoing shuttle, thereby relieving the pressure exerted by the binder on the shuttle. The shuttle binder is so supported that it has a substantially parallel motion in relation to the position in which it has been set, and may be adjusted towards and away from the back of the shuttle box.

Modern methods of designing and cardcutting. I & II. A. T. C. Robinson. *Textile Mfr. 74*, 375-8 (Aug. 1948); 434-6 (Sept. 1948).

Part I is a full description of the French type lisage cardcutting machine, and Part II is devoted to a discussion of its efficient operation.

New Jacquard loom. Tuner. *Textile Mfr. 74*, 373-4 (Aug. 1948).

Features of the latest Dracup jacquard are noted. The smallest size has 448 books and the largest 2,688; the range of machines increases in multiples of 448.

Overlooker's [overseer's] case book. W. Middlebrook. *Textile Mfr. 74*, 352-4 (Aug. 1948).

Making notes of interesting and difficult jobs that have been mastered provides the overseer with valuable information that may be used again when similar cloths require special treatment.

Patented device detects thin places. Anon. *Textile Industries 112*, 125 (Dec. 1948).

A thin place detector for looms tends to eliminate defects at the source since it has a preventive rather than corrective action on the loom. A description of the detector is given with a diagrammatic sketch.

Pick controlled stop motion for looms. Clifton W. Howell & Gilbert L. Elderbaum. USP 2 456 193, Dec. 14, 1948.

A loom may be automatically stopped, when a predetermined number of picks have been executed, by a stop motion in connection with a picker counter. The picker counter used for control purposes is in addition to the 2 or 3 counters normally used on a loom, and is driven continuously by the means driving the other counters.

Picking on smallware looms. A. Crossland. *Textile Mfr. 74*, 121-5 (Mar. 1948).

The picking mechanisms used on narrow fabric looms may be divided into 3 main categories: rack and pinion, peg-shot, and fly shot. In addition to a discussion of these 3 types, the Hattersly and Sauer looms and the Matterson "S" motion are considered.

Quality considerations in terry towelling. O. Pomfret. *Textile Mfr. 74*, 399-403 (Sept. 1948).

The main points affecting quality are analyzed, including choice of raw materials, yarn characteristics in warp and filling, cloth construction, and design and size of the finished towel.

Satin stripe crinkle fabric. Anon. *Am. Wool Cotton Reptr. 62*, 9-10, 12 (Dec. 2, 1948).

A satin stripe crinkle fabric, or seersucker, uses comparatively fine rayon warp yarns and an 8-harness satin weave. Three special decorative effects are obtained by the use of 2 diffrent warps or beams in the loom, the introduction of a range of colors in the satin stripes employed for warp, and the variation in the crinkle stripe produced by the delivery of extra yarn in the warp yarn in the crinkle section.

Starting the loom after gaiting. W. Middlebrook. *Textile Mfr. 74*, 161-2, 167 (Apr. 1948).

In this discussion of final adjustments preparatory to starting the loom are included suggestions on checking the height of the shed, alignment of the reed, changing the pick wheel, and adjusting the take-up motion.

Stop motion mechanism for narrow fabric looms. Willis Pruitt (to Lawrence Products Co.). USP 2 456 021, Dec. 14, 1948.

A stop motion mechanism provided for narrow fabric looms comprises the shuttle with a metal quill, or metal-surfaced quill, which, when the yarn is almost exhausted, establishes electrical contact with a device brought into intermittent contact with the bobbin or quill and closes an electric circuit controlling the starting mechanism of the loom.

Tappet [cam] and dobby looms. W. Barker. *Textile Mfr. 74*, 61-4 (Feb. 1948).

Types of sheds, shedding mechanisms, and cam construction are discussed briefly. Dobby shedding and positive dobbies are considered with respect to their operation and the motions involved.

Terry towels on automatic looms. T. Hargreaves. *Textile Mfr. 74*, 274-7 (June, 1948).

The construction of terry towels is analyzed and special effects, e.g., fancy borders, are discussed. A number of designs are illustrated by diagrams and photographs.

Twills and sateens. W. Middlebrook. *Textile Mfr. 74*, 202-4 (May, 1948).

The different twills and sateens which can be made on cam looms are discussed.

Weaving and its related problems. Anon. *Am. Wool Cotton Reptr. 62*, 12-13 (Dec. 30, 1948).

A report is given of a discussion on weaving problems at the fall meeting of the Textile Operating Executives of Georgia. Problems include straight leases, bobbin changing, lubrication, selvedges, and the life of shuttles, pickers, etc.

Knitting C 3

Automatic rib half hose machinery. H. Wignall. *Textile Mfr. 74*, 73-4 (Feb. 1948).

Present-day production methods and outstanding features of modern automatic machines are reviewed. Recent developments and possible future developments are noted briefly.

COTTON IN THE KNITTING INDUSTRY. Frank A. McCord, Raymond Steinbach, Jr., & Geo. S. Buck, Jr., Memphis, Tenn., Natl. Cotton Council of Am., 1948; 21 pp.

This survey of the knitting industry was undertaken to set forth the factors influencing the selection of fibers or yarns by knitters. During the survey, conducted in the spring and summer of 1948, spinners, yarn finishers, knitters, and yarn brokers were visited. The advice and opinions from these sources have been combined with other statistical and technical data in completing this survey. This report should be of interest to spinners, knitters, and merchandisers of cotton yarn and cotton knit products. It is hoped that the study may stimulate improvements in quality, expansion in research, and advances in advertising and merchandising practices.—Introduction.

Detector for locating imperfections in knitted fabrics. Geo. E. Henning (to Western Electric Co., Inc.). Can. P. 446 453, Jan. 27, 1948.

See USP 2 427 406, Sept. 16, 1947 (TTD: *5*, 26).

Double cylinder rib automatic. H. Wignall. *Textile Mfr. 74*, 168-70 (Apr. 1948).

The operation, drive, factory layout, and control systems of automatic knitting machines are discussed.

Full fashioned stocking. Paul Schmidt (to Wytheville Knitting Mills, Inc.). Can. P. 444 562, Oct. 14, 1947.

See USP 2 390 003, Nov. 27, 1945 (TTD: *3*, 25).

Knitted fabric. Isaac H. C. Green & Donat H. Frageolle. Can. P. 446 406, Jan. 27, 1948.

A knitted stocking consisting of a body fabric, a wrap pattern accurately plated upon a plurality of consecutive wales of the body fabric and a second wrap multi-wale pattern made of a single yarn superposed and accurately plated upon corresponding wales of the first wrap pattern.

Knitted fabric. Henry H. Holmes & John C. H. Hurd. Can. P. 446 562, Feb. 3, 1948.

Knitted fabric which includes purl stitches and

plain stitches, with wale loops transferred to adjacent needle wales to form openwork lace effects in the plain stitches, and wrap effects in desired courses.

Knitting machine. Roy C. Amidon (to Vanity Fair Mills, Inc.). Can. P. 446 329, Jan. 20, 1948.

In a flat knitting machine employing bearded needles, knockover sinkers, sinker nibs and thread guides and thread racking means, the improvement which comprises fingers projecting between adjacent needle paths and over which the threads from the guides are racked.

Knitting machine needle. Roy C. Amidon (to Vanity Fair Mills, Inc.). Can. P. 446 330, Jan. 20, 1948.

A knitting needle having a semi-rigid beard united to a shank by a bend having a semi-circular inner surface, a tongue having a grooved shank to embrace the needle shank between the same and the beard and having a bend terminating in a hook and having a semi-circular outer surface to contact the semi-circular inner surface of the needle bend, the hook end of the tongue lying rockably in a groove in the inner surface of the beard thereby to anchor the parts pivotally together.

Knitting method and machine. Harold E. Houseman (to Scott & Williams, Inc.). Can. P. 444 555, Oct. 14, 1947.

A circular knitting machine comprising a needle cylinder, needles adapted to slide in said cylinder, means for feeding yarns to the needles, means to control needle movements to form stitches, means for imparting reciprocatory movements to the cylinder, a double acting needle picker, and means for rendering said picker active to pick needles only when the needles are moving in one direction during the formation of a part of a pocket by reciprocatory knitting.

Light system for knitting machines. Marco Violandi (to Stop-Motion Devices Corp.). USP 2 456 160, Dec. 14, 1948.

A system is provided for illuminating the interior of circular material being knitted. A small wattage lamp is connected in series with the 2 conductor rings and there is provided a shunt circuit from the feed circuit to the controller stop means and the parallel group of switches, connecting the contact arms, conductor rings, and lamp in series. The present system of connecting the illuminating means to a 110 volt line strung from the ceiling is eliminated, and attendant fire hazards are considerably reduced.

Method of knitting. Oscar Fregeolle (to Hemphill Co.). Can. P. 446 137, Jan. 13, 1948.

A method of knitting upon a circular, independent needle, knitting machine which includes the steps of moving the sinkers inwardly soon enough and far enough that yarns will be drawn over their backs and causing them to remain stationary during the drawing of the yarns, drawing a wrap yarn, a plating and a body yarn over a part of the backs of sinkers having a definite height and through the needle loops of the previously knit course, casting off the previously formed needle loops by the sinkers acting upon the intervening sinker loops only, tightening the newly formed needle loops around the shanks of the needles below the latches by stretching the newly formed sinker loops by causing them to pass from the backs to the throats of the sinkers upwardly over the tops of the nibs.

Nylon hosiery: reducing static after boarding, etc. Anon. *Textile Mfr. 74*, 385-6 (Aug. 1948).

An Ionotron installation at Pohatcong Mills, Washington, N. J., is described and illustrated. A brief account is given of the difficulties caused by static electricity in handling nylon hosiery.

Nylon staple in men's half hose. R. D. Bennett, Can. Industries Ltd. *Can. Textile J. 65*, 48, 49 (Nov. 12, 1948).

Nylon staple as a 100% yarn, or in blends with wool offers a number of advantages in men's half hose. Some of these advantages are: shrinkage resistance, abrasion resistance, ease of washing, comfort and warmth, and appearance. The results of a number of tests of shrinkage and abrasion are given.

Production of striped ribbed footwear. H. Wignall. *Textile Mfr. 74*, 209-10 (May, 1948).

Striped footwear having a plain foot bottom, or a "split foot", is produced by the "Komet" striping mechanism. Features of this mechanism and its operation are discussed.

Purl knitted fabric. H. Wignall. *Textile Mfr. 74*, 6-7 (Jan. 1948).

The characteristics of purl knitted fabrics are discussed briefly with respect to pattern drafting, fancy purl effects, and mechanical details of the process. The most recent development has been the adaptation of purl stitch knitting to the production of half hose, socks, etc.

Quality control in half hose manufacture. H. Wignall. *Textile Mfr. 74*, 316-8 (July, 1948).

Quality control methods in use today are summar-

ized and suggestions for further control are given. A device, called the "K" gage, for measuring the extension of the knitted tube under a given load is described. The "K" gage, designed by the author, is intended for use by the machine operator at the machine, thus saving the time normally required to carry the sample to be tested to a central testing station.

Seamless rib automatic machines. H. Wignall. *Textile Mfr. 74*, 108-9, 135 (Mar. 1948).

A detailed explanation is given of the functions of the knitting and transfer elements of these machines.

Structure of new interlock fabric. H. Wignall. *Textile Mfr. 74*, 259-60 (June, 1948).

Some recently introduced interlock fabrics, including ladder resistant, double faced, and Jacquard, are analyzed.

Suction apparatus for knitting machines. David P. Moore (to Godfrey Bloch, Inc.). USP 2 457 104, Dec. 21, 1948.

On a pile knitting machine, an apparatus is provided for carrying away by suction from the fiber-feeding machine all fibers thrown away normally into the atmosphere. During this operation the device sucks the free ends of the fibers, while held at each knitting point, to the outside of the cylinder.

Transfer mechanism on seamless automatic rib machinery. H. Wignall. *Textile Mfr. 74*, 415-6 (Sept. 1948).

This is a technical discussion of the present methods of production and some of the advantages and disadvantages involved.

Treating and handling of nylon hosiery to prevent snagging during manufacture. A. J. Olson, Phoenix Hosiery Co. *Textile Industries 112*, 167, 169 (Dec. 1948).

Snags and pulls in hosiery may be reduced by the use of P. V. A. size, Silica Sol treatment, or twisting of monofilament yarns. Care in dyeing and care of operators hands are also important in preventing snags and pulls.

Welded knitting machine frames. Wm. C. Redeen, Phoenix Hosiery Co. *Textile Industries 112*, 157, 159, 161 (Dec. 1948).

Knitting machines mounted on arc welded frameworks give cleaner working conditions and remove accident hazards. Construction of these frames is discussed.

Yarn selection for circular half-hose. H. Wignall. *Textile Mfr. 74*, 371-2, 392 (Aug. 1948).

The various factors which influence quality production, including selection of materials and count, twist, and finishing processes, are considered.

Special fabrics C 4

Antiseptic paper and textile product. Beulah C. Hibbert & Edith V. Cook (to Interlake Tissue Mills, Co. Ltd.). Can. P. 446 287, Jan. 20, 1948.

A method of making an antiseptic fabric comprising applying to the fabric during the course of its fabrication a solution containing a hygroscopic agent and an organic compound to mercury, in which compound one valence of the mercury is bound by an aromatic group and the other by a salt-forming group.

Development of flame-resistant fabrics containing wool. A. Johnson. *J. Textile Inst. 39*, P561-77 (Nov. 1948).

In investigations made on behalf of the Ministry of Supply (Great Britain) and carried out in the Dept. of Textiles, Leeds University, the possibility of combining threads of asbestos and wool, in order to utilize the fire resistance of charred wool, was considered so that the latter, when charred, could be held in the more indestructible framework and thereby exercise to the full its flame-resisting properties. The materials were combined in 2 ways: (1) by various arrangements in warp and filling of yarns made from wool and asbestos, (2) by weaving, as warp and filling, yarns made from blends of fibers of wool and asbestos. It was found that compound fabrics in which the outer layers of the cloth were made from asbestos yarns and wadded with wool threads were most successful in resisting the flames as the charred wool had little chance to escape from the interstices of the asbestos warp and filling. Full scale tests of made-up garments from this fabric must be made to determine if movement in wear will dislodge the wool ash to any serious extent. Such a fabric is considered to have at least 3 times the resistance to flame of a similar weight fabric made from asbestos yarn alone.

Fabric and fabric bag. Harry Corteen (to Tootal Broadhurst Lee Co. Ltd.). Can. P. 444 886, Nov. 4, 1947.

A fabric bag for explosive charges is provided in which the fabric contains a polymerized ester capable of increasing wear resistance, and a synthetic resin selected from the group comprising a urea or urea-like substance, and a smoulder-proof

reagent. A polymerized ester of an acid of the group comprising acrylic or alkacrylic acid may be used instead of the urea or urea-like substance.

"Fifty-fifty" viscose/acetate yarns in dress, etc. fabrics. R. Birch. *Textile Mfr. 74*, 65 (Feb. 1948).

Yarns and fabrics made from a mixture of 50% viscose staple with 50% cellulose acetate staple are described briefly. The finishing technique and properties of the material are briefly noted. Eight "fifty-fifty" fabrics are illustrated in photographs.

Speeding-up of sampling. H. E. Wenrich. *Rayon & Syn. Tex. 29*, 53-4 (Dec. 1948).

A number of suggestions are given for the production of samples of novelty and special fabrics within a short time.

Woven plastics; introducing "Tygan"—a new plastics woven material. Anon. *Brit. Plastics 20*, 235-6 (May, 1948).

A new synthetic woven material, introduced under the registered trade name of "Tygan", is woven on specially equipped looms from extruded monofilaments of "Bexan". Tygan can be produced in a variety of weaves and colors, and its characteristics make it particularly suitable for upholstery material for automobiles, trains, buses, hotels, theaters, etc.; it may also be used for luggage covers.

Inspection and testing C 5

Defects in rayon fabrics. T. Grindley, Courtaulds Ltd. *Textile Industries 112*, 108-10 (Dec. 1948).

Rayon fabric defects, such as light warp stripes, reediness in shirting, streaky warp and weft, etc., and the analysis of these problems are briefly summarized.

Erase your picks and pulls. Erskine Root. *Textile Industries 112*, 163-4 (Dec. 1948).

Small pulls and "fish eyes" in hosiery can be simply and effectively wiped out with an ordinary rubber eraser. The use of erasers in place of the pick method will cut the time and cost of repairing hosiery.

Relationship between the structural geometry of a textile fabric and its physical properties. I. Literature review. Stanley Backer, Philadelphia Quartermaster Depot. *Textile Research J. 18*, 650-58 (Nov. 1948).

This is part of a thesis of the same title prepared at M.I.T. under the direction of Prof. E. R. Schwarz, and is the first of a series of papers to be issued by the Quartermaster Corps on this subject. Published information on the relationship of the structure of a fabric to various functional properties such as breaking strength, and elongation, tear-resistance, thermal insulation, abrasive resistance, and gas permeability was surveyed.

Fabric applications C 6

Bonded glass cloth. Anon. *Brit. Plastics 20*, 92 Feb. 1948).

Glass cloth, bonded with the new silicone resins in which C atoms have been partly replaced by silicon and oxygen atoms, provides an insulating material which is resistant to temperature and is practically fireproof. The material, which was developed by Ashdowns Ltd., St. Helens, Lancashire, is capable of withstanding temperatures of 250°C continuous operation, and even intermittent operation up to 300°C. The use of asbestos fibers was also investigated, but further investigation will be required before they can be used to obtain a comparable product.

From the shoulders down. F. J. Monaghan, Mine Safety Appliance Co. *Safety Eng. 96*, 18-20, 83-86 (Oct. 1948). These are the hands. F. J. Monaghan, Mine Safety Appliance Co. *Ibid.*, 14-16, 50-51 (Nov. 1948). You can't get a head but——. Fred A. Hornsby, Jr., Mine Safety Appliance Co. *Ibid.*, 14-16, 53-55 (Dec. 1948).

Safety clothing designed to protect workers from industrial hazards is available in asbestos, wool fabrics, treated cotton fabrics, leather, rubber, and plastics. The first of this series of articles indicates the special features of each material and the forms of clothing available: aprons (bib and waist types), suits, cloaks, and capes, leggings and spats, and special safety shoes. The second article describes the various standards and special constructions of gloves for hazards of heat, metal spatter, abrasion, impact, and liquid and electrical hazards. Arm protection and dermatitis are also discussed. The third article describes safety headgear, dealing mainly with the fiber, metal, or plastic hats which protect against impact, heat and fire, and liquids. Maintenance of safety clothing is stressed throughout the series.

STANDARD FINISHING D

Adsorption of surface-active agents by fibers. J. C. Harris, Monsanto Chemical Co. *Textile Research J. 18*, 669-78 (Nov. 1948).

Published information on the ability of cotton, wool and other textile fibers to remove surface-active agents from solution and the probable mechanisms involved are reviewed. Cotton exhibits low adsorption of surface-active agents, with the exception of cationics; wool, on the other hand, adsorbs anionic and cationic agents over a considerable period of time and in amounts exceeding those adsorbed by cotton. Cotton lacks groups which are chemically reactive unless subjected to drastic treatment, e.g. mercerization, animalization, or treatment with a chemically reactive resin. With wool, the adsorption is of such degree that a simple mono-molecular film does not account for all of the agent adsorbed, and further explanation is required.

Determination of the industrial value of detergents. I. Methods for determination of wetting power. J. P. Sisley. *Am. Dyestuff Reptr. 37,* 635-42 (Oct. 4, 1948).

The principal methods proposed in Europe for determination of wetting power are discussed and compared; these include the methods of Erban, Kistenpart (Herbig, and of Servo-Schopper for testing wetting of textile materials. Several of these methods have counterparts in standard U. S. test methods, and the comparisons given of the European methods can be transferred to the American methods and practice.
WPU,Jr.

Economics of instrumentation. C. W. Bowden, Jr., Brown Instrument Co. *Am. Dyestuff Reptr. 37,* 647-51 (Oct. 4, 1948).

This is an address in which the uses of modern control instruments in textile finishing plants are considered in relation to their contributions to quality control, reduction of waste, and reduction of production costs. Control of batch dyeing and of continuous bleaching is discussed in detail, and mention is made of many other applications in chemical processing.
WPU,Jr.

Effect of temperatures on finishing compounds. Arthur H. Noble, Jr., Arnold Hoffman & Co., Inc. *Textile Industries 112,* 117, 119 (Dec. 1948).

Results of tests on temperature effects on sulfated oils, tallows, softeners, and weighters are described.

Electronic device measures moisture content of textiles. Anon. *Textile Industries 112,* 179 (Dec. 1948).

A brief note is given on the Drimeter, an electronic instrument for continuously measuring exact moisture content, which may be installed on any type fabric drier or warp sizing machine.

Evaluation of soaps and synthetic detergents. Margaret S. Furry, Verda I. McLendon, & Mary E. Aler. *Textile Industries 112,* 119, 121 (Dec. 1948).

A paper on the testing of soaps and synthetic detergents for their effectiveness in removing soil under standardized conditions is summarized.

Examination of textile aids and similar products. I. G. Farbenindustrie A. G., Ludwigshafen. FIAT Microfilm Reel G 21; Frames 632-639. 1929-1936. *Bibl. Sci. Ind. Reports 6,* 477 (Aug. 8, 1947). Enlargement print $1.50; *in German.*

These products are divided into 2 groups: I—Sulfuric acid esters: (1) Fatty alcohol sulfonates; (2)Sulfonated fatty oils (Turkey red oils); II—Genuine sulfonic acids: (3) Nekals and similar products; (4) "Igepon A"; (5) "Igepon T". The methods, which are described, vary correspondingly. No general rules can be given because of the complex nature of most products.

Gluconic acid in the textile industry. Geo. B. Stone. Chas. Pfizer & Co. *Am. Dyestuff Reptr. 37,* 633-4, 642 (Oct. 4, 1948).

The uses of gluconic acid in the textile industry, particularly as an acid assistant and a scouring agent, are reviewed. Gluconic acid has several properties which make special uses of interest: included in these are the power to sequester metal ions, a low rate of corrosion toward metal surfaces, and a lack of irritating vapor. Applications are mentioned in the fields of scouring and bleaching, dyeing, printing, laundering, and other textile processes.
WPU,Jr.

Incidence of calcium salts in textile finishing. "Colourist." *Textile Mfr. 74,* 430-3 (Sept. 1948).

Calcium salts either help or hinder the various finishing processes according to the nature of the compounds of calcium. The effects of calcium salts in finishing operations are considered under the following topics: occurrence of calcium in water, insoluble soap formation, function of soaps, calcium residues, rayon yarn (dull luster), silk dyeing, insoluble azoic dyeing, residues in printing, chemicking and clearing processes, clearing acetate effects, prevention of insoluble soap formation, and tendering.

Lubricants for textile materials. Abraham Mosco-

witz (to L. Sonneborn Sons, Inc.). USP 2 454 822, Nov. 30, 1948.

This invention provides a textile treating agent which comprises a hydrocarbon textile lubricating oil and substantially dissolved therein at least 28% alkali metal petroleum mahogany sulfonate obtained by reacting a petroleum mahogany sulfonate solution in an organic solvent substantially immiscible with water, with an oxidation agent having an oxidation potential in such solution by reason of "available" O_2 or by reason of "available" Cl_2 in amount and for a period of time sufficient to yield at least 28% sulfonate solution having a Saybolt viscosity at 100°F not in excess of 600 seconds.

New automatic weft straightener. F. A. Westbrook. *Textile Mfr. 74*, 368-70 (Aug. 1948).

A new type of automatic weft straightener, actuated by reflected light and photo-electric cells, is described and illustrated. The device, which has recently been installed in a number of textile mills in the U. S., is said to greatly reduce seconds, increase production, and improve quality of output.

New developments in army sea water laundering. T. H. Vaughn, E. F. Hill, C. E. Smith & L. R. McCoy. Wyandotte Chemicals Corp., & J. E. Simpson, Office of the Quartermaster General. *Ind. Eng. Chemistry 41*, 112-19 (Jan. 1949).

As a wartime project to help alleviate shortages in detergents for sea water laundering, evaluation of these materials was undertaken. Preliminary laboratory tests determined reaction with sea water, soil removing ability, and whiteness retention of washed samples. For the twenty detergents passing this screening, optimum concentration and temperature were found to be 0.5% and 120-140°F, respectively. Increase of pH to improve detergency was effected by a modified soda (sodium bicarbonate-carbonate) without precipitate formation. Field tests, using synthetic sea water, on eight promising materials checked and extended laboratory results led to development of an improved laundry formula. Finally, shipboard tests on a hospital ship evaluated 3 materials and 2 formulas under service conditions. Laboratory tests proved good enough to distinguish poor from promising materials, but could not consistently separate acceptable from superior detergents. In all tests, laboratory values on soil removal agreed best with actual laundering results for a single-cycle test panel made up by Colgate-Palmolive-Peet. On the other hand, whiteness retention and loss of tensile strength were best evaluated by a ten-cycle complex swatch, the Wyandotte Tester.

On the basis of the tests, 4 detergents and an improved laundry formula were approved.

New developments in steaming and ageing. Anon. *Textile Mfr. 74*, 328-9, 331 (July, 1948).

A new steamer, from which air can be eliminated almost completely before fixation begins, takes the fabric in batches, usually interwound with back gray. The cloth and gray are wound on a skeleton warp beam. The steamer is in the form of a horizontal cylinder and is equipped with a rail track on which a small carriage is fitted. A single 32 in. diameter cylinder can process 1,000 yds. per hour. Controls are located on the left-hand side of the operator and are easily manipulated.

Practical aspects of wetting and detergency. E. S. Paice. *Chemistry & Industry 44*, 691-4 (Oct. 30, 1948).

The structure of wetting agents and detergents and their use in wool scouring, piece goods scouring, wet chlorination for shrinkproofing of wool, carbonizing baths for wool, acid milling of wool, and kier boiling of cotton are discussed. The use in the silk and rayon industries for such purposes as degumming, scouring, dyeing, etc. has increased because of the gentle action of detergents.
LCL

THE PROCESSING AND FINISHING OF RAYON [AND NYLON] FABRICS. R. A. McFarlane. Courtaulds Ltd., 1948. 104 pp. Price: Not given.

This publication . . . deals with the processing of two types of fabrics, . . . rayon crêpe and nylon flat fabrics.—Introduction.

Textile steaming apparatus. Ralph L. Carr (to The Mathieson Alkali Works). Can. P. 444 652, Oct. 21, 1947.

A textile steaming apparatus comprises the combination of a closed pre-treating chamber, which may be adapted for either gaseous or liquid pre-treatment, contiguous to a closed steam chamber. The cloth passes from the pre-treating chamber, where it passes over rolls placed at both ends, into the steam chamber. In the steam chamber the cloth falls into accordion folds on lateral conveyors and is moved continuously during the steaming process. (See also Can. P. 444 653).

Textile steaming apparatus. Geo. P. Vincent & Archie L. Dubeau (to the Mathieson Alkali Works). Can. P. 444 653, Oct. 21, 1947).

A textile steaming apparatus comprises a steam chamber containing a number of lateral conveyors disposed one above the other, means for introduc-

ing cloth continuously into the chamber in accordion folds onto the uppermost conveyor with the folds in a substantially upright position. Guide means are provided at the discharge and receiving ends of the conveyors. From the discharge end of the lowermost conveyor the cloth is continuously removed from the chamber. (See also Can. P. 444 652).

Trends in piece-goods preparation. C. Norris Rabold, Erwin Cotton Mills Co. *Textile Industries 112*, 115, 117 (Dec. 1948).

Trends in washers for bleaching, dyeing equipment, finishing equipment, and instrumentation in processing machinery are briefly reviewed.

DYEING AND PRINTING E

Centralized control of dyeing cycles. F. D. Wallace, Dominion Burlington Mills Ltd. *Can. Textile J. 65*, 39-40 (Oct. 29, 1948).

The selection, installation, and operation of a system of centralized control dyeing is described briefly. In operation, dyeing formulas are made up by the dyer, sent to the mixing room where the color is mixed, and fed to the individual machines on instruction from the dyer; temperatures are then set for the desired dyeing cycles. All dye patches are brought to the dyer's office for matching, and the whole operation is controlled from this one spot. Each control instrument has a chart where the dyeing vagaries are recorded and can be related to the results of any individual lot.

Classification of direct dyes. J. A. Woodruff, American Viscose Corp. *Am. Dyestuff Reptr. 37*, 691-6, 708 (Oct. 18, 1948).

Data for about 175 direct dyes are presented for the use of dyers concerned with the application of direct dyes to viscose rayon and cotton, particularly to continuous filament viscose rayon cakes on spun rayon packages. The dyes are classified into 4 groups based on readings of the apparent speed of diffusion of individual dyes within solid blocks of water-swollen viscose, and on measurements of the rate and degree of exhaustion of each dye on swatches of spun viscose fabric.
WPU,Jr.

[Comprehensive report on the dyeing of textiles.] I. G. Farbenindustrie A. G. FIAT Microfilm Reel 5; frames 3307-3490. PB L 73758. *Bibl. Sci. Ind. Reports 6*, 578 (Aug. 15, 1947). Enlargement print $18.50; *in German.*

Data on the coloration of cellulose fibers with acid wool dyeing materials by adding synthetic resins.

T. Crebert, Erlangen Univ. FIAT Microfilm Reel I 281; frames 3241-3253. Nov. 6, 1937. PB L 73407. *Bibl. Sci. Ind. Reports 6*, 642 (Aug. 15, 1947). Enlargement print $1.50; *in German.*

Dyeing. Cyril M. Croft & Walter H. Hindle (to Camille Dreyfus). Can. P. 446 336, Jan. 20, 1948.

Method for the coloration of a cellulose acetate textile material which comprises mechanically impregnating such cellulose acetate textile material with a solution of a direct dyeing dyestuff for the cellulose acetate material in an aqueous medium comprising at least 60% by weight of a lower aliphatic alcohol, said solution containing from 1 to 8% of a lower aliphatic acid, and then rapidly drying said material.

Dyeing of woolen fibers and fabrics with vat colors. Anon. *Technical Bull. 4*, 53-61 (June, 1948).

A method is described by which all types of vat colors can be applied to woolen fabrics in the rope form, in conventional piece dye kettles or reels, and under alkalinity conditions similar to those used in cotton dyeing. Temperature is the controlling factor in producing evenly dyed wool undamaged by alkali. Good penetration and tinctorial strength are obtained by controlling the time of dyeing. Further mill trials are desirable to confirm fully these results; large scale production has shown that duplication of results may be obtained. Future work will include adaptation of the process to specific types of dyeing equipment, and selection of dyestuffs to give ultimate fastness properties.

Effect on Sanforset process on azoic, direct, developed, sulfur and vat dyes. Anon. *Technical Bull. 4*, 62-71 (June, 1948).

Samples of dyeings were processed by the Sanforset process of Cluett, Peabody & Co., Inc., at their plant. The treated and untreated pieces, of all-viscose spun rayon twill, were tested in the DuPont laboratory for differences in shade and fastness to light (Fade-Ometer), crocking, perspiration and washing. The shades of most azoic and vat colors were affected only noticeably by the Sanforset treatment; those of the sulfur colors were appreciably altered; direct and developed colors showed considerable color loss. The light fastness of some of the colors was noticeably reduced while the rest of the colors retained the same light fastness as the untreated dyeings. Fastness to washing and perspiration was generally improved by the stabilizing process. Included

in the experimental data given is a table showing the effect of the Sanforset process on the shade, light (Fade-Ometer), crocking, perspiration and wash fastness of the 35 dyes investigated.

Effect of sulfur black on tendering of cotton yarns. Anon. *Textile Industries 112*, 121 (Dec. 1948).

A brief summary is given of a paper on the tendering of Sulfur Black dyed cotton and the reduction of this tendering by alkaline agents.

Effect of treatment with Zelan AP Paste on Diagen prints. Anon. *Technical Bull. 4*, 79-81 (June, 1948).

A series of Diagen colors was printed on cotton sheeting and Zelan AP Paste applied to a portion of each print so that approximately 5% (based on wt. of fabric) was retained. Treated and untreated pieces were examined for differences in shade, light and crock fastness. It was found that, generally, the fastness properties of Diagen prints were not objectionably affected by the Zelan AP Paste treatment at 5%.

Effect of treatment with Zelan AP Paste on dyed nylon. Anon. *Technical Bull. 4*, 74-8 (June, 1948).

The effect of Zelan AP Paste on the shade and fastness properties of dyed nylon has been determined. All the DuPont acetate colors were applied to nylon piece goods and portions of each dyeing were treated with Zelan AP Paste. Treated and untreated samples were then tested for light (Fade-Ometer) and crock fastness. The Zelan application appreciably altered the shade of many of the dyeings. Light fastness was reduced in some cases; the effect on crocking was negligible. The experimental procedure is described and detailed data on results are presented in a table.

Emulsion adapted for coating textiles. Fred G. La-Piana & Herman S. Bosland (to Stein, Hall & Co., Inc.). USP 2 453 752, Nov. 16, 1948.

This invention provides means for using pigments in textile printing. The pigment is dispersed in an oil in water emulsion in which the dispersed phase consists of an oil-soluble rubber-like substance in a volatile water-immiscible organic solvent; the continuous phase comprises an aqueous dispersion of material comprising the product obtained by adding urea and an aldehyde to a protein dispersion, which will form a water-insoluble resin. Fabrics printed by this means are characterized by a soft feel, and the pigments will not crack or wear off by mechanical abrasion. The pigments are resistant to laundering, also.

Fastness of Acetamine diazo colors to atmospheric gases. Anon. *Technical Bull. 4*, 142-3 (Sept. 1948).

Acetamine diazo colors were applied to bright cellulose acetate and portions of these dyeings subjected to AATCC Atmospheric Gases Tests—Tentative. The results are presented in a table.

Fastness ratings for acid, Chromacyl and chrome dyes to nylon. Anon. *Technical Bull. 4*, 121-37 (Sept. 1948).

The fastness ratings of acid, Chromacyl, and chrome dyes are presented in a series of tables; this information supplements a similar article on the acetate dyes published in *Technical Bull. 3*, 53-6 (July, 1947).

Fastness ratings for acid dyes on wool. Anon. *Technical Bull. 4*, 161-73 (Dec. 1948).

Tables are presented giving the fastness ratings for DuPont acid dyes on wool. Light fastness ratings were determined by Fade-Ometer tests using an FDA-R unit; fastness to washing ratings were derived from the AATCC test for fastness to domestic laundering (½ hr. at 100°F), which is considered more practical from the consumer angle.

Fastness ratings for direct dyes on nylon. Anon. *Technical Bull. 4*, 174-85 (Dec. 1948).

In a series of tables, the fastness ratings for direct dyes (DuPont) on nylon are presented.

Fastness to dry cleaning of vat color dyeings. Anon. *Technical Bull. 4*, 1-21 (Mar. 1948).

The complete line of DuPont vat colors was tested for fastness to dry cleaning in both open and closed types of dry cleaning equipment. Similar dyeings treated with Zelan AP Paste were included in the investigation to determine the effect of the water repellent on the fastness of dyed material. The tests are described and the results presented in tables showing the effect of the tests on individual dyeings.

"Fibrofix". C. P. Tattersfield, Courtaulds Ltd. *Rayon & Syn. Tex. 29*, 89-90 (Dec. 1948).

"Fibrofix" is a fine cream-colored powder, insoluble in water and organic solvents, and is decomposed by strong mineral acids and alkalis, but is soluble in dilute acid. It is used to improve the fastness of direct cotton dyes to wet processing, especially washing, on natural and regenerated cellulosic fibers. It was developed by Courtaulds Ltd. in England and is now being made available in this country.

Fine line work in textile printing. A Technical Correspondent. *Textile Mfr. 74,* 130-2 (Mar. 1948).

The techniques used in printing by copper roller, screen, and hand block are discussed. Printing foundations, print pastes, doctor blades, and squeegees are among the topic considered.

Keeping the well dressed male cool in summer. Anon. *Technical Bull. 4,* 27-47 (Mar. 1948).

The significance of the infrared absorption characteristics of dyes upon the coolness of the fabric to which they have been applied is discussed briefly. A series of tables are given showing the infrared reflectance characteristics of a large number of dyes.

Limitation of color—Part IV. The effect of top-surface reflection. Part V. The problem of dye mixtures. W. D. Wright. *Rayon & Syn. Tex. 29,* 91-2 (Dec. 1948); *30,* 82-3 (Jan. 1949).

Part IV is a continuation of the discussion that started in the Nov. 1948 issue. (See TTD: *6,* 54). Part V considers the efficiency of a dye when used as one of a mixture of 2 or more dyes. (To be continued).

New process for dyeing carbonized piece goods with acid dyestuffs. Anon. *Technical Bull. 4,* 48-51 (Mar. 1948).

Regular acid dyestuffs may be dyed on carbonized piece goods without pretreatment by the Sodium Formate Process. All the carbonizing acid is utilized in this process and the deletenions effect of strong mineral acid on the fabric and dye kettle is eliminated. Sodium formate is added to sulfuric acid in the ratio $2HCOONa + H_2SO_4$. The amounts of HCOONA and Na_2SO_4 produced by the reaction give the concentrations generally used dyeing regular acid colors. In full-scale mill trials of the process it has been found that improved dyeings resulted, tensile strength increased, and appreciable savings were realized in labor, steam, and power.

pH control of dyeing. R. B. Seymour, Wm. Agnew, J. A. Crumley & A. J. Kelly. *Am. Dyestuff Reptr. 37,* 689-90 (Oct. 18, 1948).

This is a review of the literature (about 50 references) on the measurement of pH to control dyeing processes.
WPU,Jr.

Printing of nylon fabrics. H. P. Baumann, Allied Textile Printers, Inc. *Rayon & Syn. Tex. 29,* 75-6 (Dec. 1948).

The types of colors suitable for application printing on nylon are discussed briefly and a number of different colors of each type are recommended for use. Assistants are suggested for certain of the colors and printing formulas are given for some. The discharge printing of nylon is similarly considered.

Saponification of cellulose acetate. Anon. *Technical Bull. 4,* 111-17 (Sept. 1948).

The saponification of cellulose acetate by trisodium phosphate at various concentrations was investigated. The findings were adapted to the controlled saponification (60%) of acetate yarns in a 50-50 acetate-viscose warp yarn mix. The quantity of caustic soda required for saponifying the acetate portions of fabrics to various degrees was calculated. This is directly applicable to batch processes, and can be indirectly applied to continuous saponification processes. It was also demonstrated that the cellulose acetate made for textile use by 3 leading U. S. manufacturers is practically identical insofar as chemical analysis by caustic titration can show. (See also: Some Aspects of Saponification of Acetate Rayon, *Am. Dyestuff Reptr. 36,* 64-9 (Feb. 10, 1947), TTD *4,* 199).

Solubilities of Luxol colors. Anon. *Technical Bull. 4,* 22-4 (Mar. 1948).

Ten Luxol dyes were tested for solubility in ethyl alcohol, acetone and methyl cellosolve. Various concentrations of solutions were used and the results obtained and recommendations based upon these results are given. Quantitative information has not been developed on the solubility of 7 of the colors in methyl alcohol or methyl ethyl ketone. Previous laboratory experience has indicated that they are more soluble in methanol than in ethanol. The remaining 3 colors are reasonably soluble in methyl ethyl ketone.

Some conditions affecting the application of vat colors. Anon. *Textile Industries 112,* 121, 123 (Dec. 1948).

An investigation of some of the variables involved in dyeing and printing with vat dyes is summarized.

Stability of vat colors at elevated temperatures. Anon. *Textile Industries 112,* 113, 115 (Dec. 1948).

A paper on the use of dextrine for preventing the reduction of vat dyes and for restoring to some degree vat dye solutions that have been over-reduced is summarized.

Tannic acid method of dyeing as applied to nylon hosiery. Anon. *Technical Bull 4,* 72-3 (June, 1948).

A simple practical method has been developed for dyeing nylon hosiery made from monofil and plied yarns. Pretreatment with tannic acid (commercial grade) produces a uniform shade and permits the use of acetate colors with their unique dyeing properties.

Unique raw stock handling system. Anon. *Textile Industries 112*, 103-5 (Dec. 1948).

The "Twintainer", a new type extractor which has a removable basket divided into 2 sections with a hinged bottom for each section, is described and details of its operation given. The use of this new extractor for handling dyed raw stock increases production and lowers labor costs.

SPECIAL FINISHING F

Animalization and the permanent finishing of cellulose fibers with ethylenimine and its derivatives. W. Wigman. Communication No. 83 from the Vezelinstituut, T. N. O., Delft, Holland. (Feb. 1947); *in Dutch.*

This is a survey of patents (principally I. G. Farbenindustrie patents) on the use of ethylenimine to modify the dyeing properties, waterfastness, and the mechanical properties of cellulose fibers, and also of methods of preparing the derivatives. The most promising compound, according to recent reports, is N.N-ethylene urea, obtained by the reaction of ethylenamine with mono- and diisocyanates, with a N-chloro amide of a fatty acid, or with cyanur chloride.

Causes and elimination of fabric shrinkage. E. C. Pfeffer, Jr., Cluett, Peabody & Co., Inc. *Can. Textile J. 65*, 53, 56 (Nov. 26, 1948).

The causes of shrinkage in cotton, wool rayon, and synthetic fabrics are reviewed. The effect of manufacturing and finishing operations on shrinkage are discussed, and a number of pre-shrinking processes are noted.

Coated fabric. Henry A. DePhillips. Can. P. 446 484, Feb. 3, 1948.

A water impervious moisture-vapor transmitting absorbent textile fabric composed of a fabric sheet, a calender coat of a water impervious moisture-vapour transmitting plastic material containing no volatile solvents and adhering to one face of the fabric sheet, and knife coats of a solution composed of not more than 50% by weight of an absorbent containing plastic material dissolved in not less than 50% by weight of a volatile solvent adhering to the surface of the water impervious moisture-vapour transmitting calender coat and to the uncoated face of the fabric sheet.

Fabrics research. Floyd E. Bartell. Progress reports. Apr. 1, 1943-Dec. 1, 1945. Contract No. OEMcmr-252. PB M 77258. 18 pp. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8, 1947). Microfilm $1.00, Photostat $2.00.

Progress reports in the development of water repellent and water resistant impregnation of fabrics and the production of a bonded aerogel laminated fabric (aerobond).

Fabrics research. Floyd E. Bartell. Contract OEM cmr-252. Annual Report. Abstract. 1 p. Nov. 1943. PB M 77369. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8, 1947). Microfilm $1.00, Photostat $1.00.

The results of a study of the development of a highly water-resistant, air permeable fabric are presented.

Film-forming material. Jas. H. Rooney, John H. Sharphouse & Philip R. Hawtin (to Claude G. Bonard). Can. P. 446 481, Jan. 27, 1948.

Process for the production of a textile fabric which is resistant to penetration by mustard gas and by water, which comprises providing a fabric of regenerated cellulose of high tenacity with an adherent film of polyvinyl alcohol, and treating the film with a dilute solution of formaldehyde and an inorganic acid as catalyst in a mixture of water and a non-solvent for the polyvinyl alcohol, the proportions of water and the non-solvent in the mixture being such that the film is at no stage in the process dissolved thereby, and the amount of formaldehyde being such that 20 to 45% of the hydroxyl groups in the polyvinyl alcohol are acetalized.

Fireproofing of fabrics. J. E. Ramsbottom. British Commonwealth Scientific Office, Rept. 109-B1-2. 1947. 124 pp. PB L 78693. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8, 1947). Microfilm $3.00, Photostat $9.00.

In the second report of the Fabrics Research Committee issued in 1930, an account was given of experimental work on fireproofing of fabrics which had been in progress at the Royal Aircraft Establishment. This report carries these investigations further and an attempt has been made to give a comprehensive summary of the work from its inception and to include the latest information available. Although the work has been concerned mainly with fabric, it has been thought desirable to include the results of the investigations on the fireproofing of Kapok and fireproof finishes for aeroplanes, which are closely related problems. The report contains a number of tables and graphs

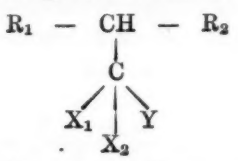
as well as an Appendix which gives a complete list of fireproofing processes.

Importance of the neutralizing step in the application of Zelan AP Paste. Anon. *Technical Bull 4*, 102-10 (Sept. 1948).

Tests were made to determine if the neutralizing and rinsing step in the treating of fabrics with Zelan could be omitted without sacrificing the water-repellent and other favorable qualities imparted by Zelan. It was proved conclusively that the neutralizing step after the application of Zelan AP Paste is of definite importance and cannot be omitted without adversely affecting the properties of the treated fabrics. Details of the experiment are given and detailed data on the results are presented in a series of tables.

Insecticidal detergents. J. R. Geigy Soc. Anon. Australian P. 129 307, Oct. 28, 1944.

Detergents which, on being used for washing, impart lasting protection against pests, comprise compounds of the general formula:



(where R_1 and R_2 mean the same or different aromatic radicals free from salt-forming groups, X_1 and X_2 mean chlorine, bromine or hydrogen, and Y means chlorine or bromine) distributed in soaps of natural or synthetic origin or in other detergents constituting the major portion of the whole composition, with the aid of superfatting agents and, if desired, difficulty or non-volatile solvent promoters.

Metallization of non-conductive fabrics and fibrous or porous materials. Chas. T. Suchy. Can. P. 446 370, Jan. 27, 1948.

A fabric is rendered conductive by impregnation with a solution of a metal and deposition therefrom of finely divided metal within the interstices of the fabric, and the surface portion of the fabric is then rendered substantially non-conductive by removal of the deposited metal therefrom.

Method of making a fire resistant laminated fabric. Zachary T. Walter. USP 2 455 454, Dec. 7, 1948.

Porous fabric sheets are impregnated with a chlorinated paraffin solution, dried, and coated with a cellulose acetate solution, the solvent for which softens the chlorinated paraffin. The coatting is dried to a gel state, pressed, and completely

dried. Another coating is applied and another sheet added while the coating is wet, the 2 sheets are then dried as before; successive sheets may be added similarly.

Method of rendering textile material water-repellent, and the product. Peter J. Ariente & Herman C. Allen (to Sayles Finishing Plants, Inc.). USP 2 455 886, Dec. 7, 1948.

It is claimed that fibrous textile materials may be rendered water-repellent without affecting their handle or air-permeability, by treatment with an aqueous dispersion of cetyl acetamide and an organic zirconium salt, then curing at about 300°F. The finish is said to be fast to washing and dry cleaning.
GHC

Net fabric finishing method. Ralph M. Fischer (to Am. Cyanamid Co.). Can. P. 444 418, Oct. 7, 1947.

This invention provides a method of rendering net fabrics resistant to distortion by laundering which comprises impregnating said fabrics with an emulsion in which the dispersed phase contains a blend of a phthalic anhydride-polyhydric alcohol resin with a member of the group consisting of water-insoluble organic solvent-soluble alkylated melamine-formaldehyde and urea-formaldehyde resins and the continuous phase is an aqueous solution of a water-soluble methylated methylol melamine resin, drying the impregnated fabrics, and heating the dried fabrics to cure the resins therein.

P.V.C. paste; its properties and uses. D. K. Baird, Imperial Chemical Industries Ltd. *Brit. Plastics 20*, 167-8, 169-71 (Apr. 1948).

The properties and uses of "Welvic" paste, a fluid dispersion of a specially designed vinyl chloride polymer and a suitable plasticizer, are given. Of special interest to the textile field is the method of coating fabrics with "Welvic" which is described and illustrated.

Process for the manufacture of wash-resisting dressings for textile fabrics. I. G. Farbenindustrie A. G. Patent application. T.H.K. Report. Enlargement print of frames 19-23 of FIAT Microfilm Reel C 69, PB 17666, Dec. 1936. 5 pp. PB L 63707. *Bibl. Sci. Ind. Reports 6*, 388 (Aug. 1, 1947). Microfilm $1.00, Photostat $1.00; *in German.*

The textiles are treated with solutions or dispersions of copolymers of acrylonitrile and vinyl esters.

Progress in control of wool shrinkage. Natl. Knitted

Outerwear Assn. *Rayon & Syn. Tex. 29*, 91-2 (Sept. 1948); 48-50 (Oct. 1948).

This is a summary of pertinent information on wool shrinkage processes, prepared by the National Knitted Outerwear Assn. to assist manufacturers in evaluating the various processes currently on the market. No attempt was made to pass judgment on any of the processes, and no tests were made.

Protection of textile materials against attack by microorganisms. A. D. J. Meeuse. Communication No 85. Vezelinstituut, T. N. O. (Aug. 1947), Delft, Netherlands; *in Dutch.*

This is a survey of published information on the effect of moisture, temperature, the nature of the fabric, and the conditions of service on the growth of microorganisms on textiles, the preservation of textiles, especially with antibitic preservatives, the requirements for an ideal preservative, the advantages and disadvantages of commercial fungicides and bactericides for textiles, and the methods of determining the extent of microbiological damage and the effectiveness of preservatives. The advantages and disadvantages of the use of pure cultures or natural infection with an assortment of microbes were also discussed. It was concluded that more consistent results could be obtained with pure cultures. Plans for future work on this subject at the Vezelinstituut are given.

Some observations on the shrinking and shrinkproofing of woolen goods. A. Ph. Weber. Vezelinstituut, T. N. O., Delft, Netherlands. V. I. Pamphlet No. 6 (Oct. 1947); *in Dutch.*

Very few of the large number of theories concerning shrinking have been tested experimentally, and few have been generally accepted. Also, it appears that only a very few of the proposed methods for shrinkproofing have been applied on a large scale. Accurate observations under rigorously controlled experimental conditions are needed.

Suedette sheet material. Dunlop Rubber Co. Ltd. Australian P. 129 314, Oct. 30, 1945.

Sheet material of the suedette type is produced by coating a ply of woven textile fabric with a mixture of a finely divided vinyl polymer and a plasticizer, which is substantially a non-solvent for the polymer at atmospheric temperature but gels it on heating, beating textile fibers into the resultant surface, and applying heat to gel the coating and anchor the fibers. The adhesive may be a paste of finely divided polyvinyl chloride

mixed with dibutylphthalate, and gelation may be effected at a temperature of 300-340°F. The product of the process is also claimed.

Textile material treating method. Ottomar H. Van Norden (to Metakloth Co.). Can. P. 444 654, Oct. 21, 1947.

The process of treating textile material, comprising impregnating the material with a solution containing a rare earth metal salt and sufficient alkali to overcome an acid condition, drying the material, converting the rare earth metal salt into a water-insoluble state by treating the material with a suitable precipitating agent, washing the material and removing the excess moisture therefrom and then, without drying the material, reimpregnating it with an alkaline solution containing a rare earth metallic salt, immersing the impregnated material in a precipitating bath containing a neutral soap solution, and drying the material.

Trade practice conference on shrinkage, washability and dimensional control of wool products. H. R. Mauersberger. *Rayon & Syn. Tex. 29*, 65-7 (Dec. 1948).

A meeting of interested industry representatives met with representatives of the Federal Trade Commission Sept. 16 to consider trade practice rules governing marketing of woolen goods given shrink-resistant treatments. The proposed rules are presented in detail.

Treatment of cellulose containing textiles. Ernst Weiss (to Heberlein Patent Corp.). Can. P. 446 405, Jan. 27, 1948.

A process for treating cellulose fibers, which comprises impregnating the fibers with a formaldehyde solution having a formaldehyde content of less than 10% but more than 2% in the presence of an acid catalyst having a dissociation constant of at least 1×10^{-4} to about 3×10^{-1} and in the presence of an anti-abrasion agent selected from the group consisting of animal and vegetable colloids and their conversion products capable, when heated with formaldehyde, of forming reaction products insoluble or slightly soluble in water, and having the so-treated fibers at about 70°-160°C for a sufficient time to cause them to be insoluble but swellable in the usual cuprammonium hydroxide solution, and to have an improved resistance to abrasion as compared with fibers so treated without the presence of said anti-abrasion agent.

TESTING AND MEASUREMENT G

A.A.T.C.C. Technical Manual And Yearbook 1947-8. Volume XXIV. New York, Howes Publishing Co., 1948. 578 pp. Price: $4.00 to members; $5.00 to non-members; $5.50 to other countries.

This valuable manual to AATCC test methods, both standard and tentative, dyes and chemical specialties, has been brought up-to-date and completely revised . . . The contents, as before, is grouped into 5 parts: Part I deals with the organization set-up, officers, committee memberships, various sectional officers, by-laws and constitution; Part II covers all the committee reports; Part III gives the complete AATCC test methods both standard and tentative; Part IV contains a large tabulation of American dyes and textile chemical specialties, whereas Part V gives an alphabetical list of members as well as a geographical list of members. The technical manual has particular value to textile chemists and laboratory workers as it contains all the important test methods for color fastness identification, evaluation, shrinkage, testing machinery and apparatus, etc.—*Rayon & Syn. Tex. 29*, 122 (Dec. 1948).

The American delegation reports. R. E. Douty, United States Testing Co. and Chairman, U. S. delegation to the textile committee meeting of the ISO. *Ind. Standardization 19*, 146-9 (Oct. 1948).

At the June meeting of Technical Committee 38 on Textiles, of the International Organization for Standardization (ISO), definite progress was made along several lines. Steps were taken to decide on a generic name for man-made fibers, with several names suggested. It was agreed that a universal yarn counting system is desirable, and that it should be direct, decimal, and metric. Proponents of the "gk" (grams per kilometer) system outnumbered those favoring the "grex" (grams per 10 km.). Recommendations on promotion of such a universal system and on reduction of the variety of yarn counts were made. Rayon testing methods proposed by the British were not adopted, and work was scheduled on both general and special testing methods for all types of yarn. Relatively detailed recommendations were made on the tensile testing of fabrics, including dimensions of test strips, loads, and type and time of loading. Standard atmospheric conditions for conditioning of test specimens were proposed, consisting of 65% relative humidity at 20°C, with a supplementary temperature of 27°C

for tropical countries. The scope of the committee's field was defined; adoption of the international agreement on "S" and "Z" twist was endorsed; and a number of projects, dealing mostly with testing methods, was selected for initial consideration. A proposal for standardization of textile machinery was referred to the ISO committee for this field.

Demonstration of the damage to wool by microscopic examination. Chre. J. Gorter. Vezelinstituut, T. N. O. Delft, Netherlands. V. I. Pamphlet No. 7 (July, 1947); *in Dutch.*

Microscopic tests generally used for indicating damage were tried out on experimentally damaged samples. Photographs are used to show how the effect of alkali, acid, chlorine, and microorganisms can be detected by specific reactions. Several processing treatments were tested by means of the Allwörden reaction (see *Chem. Abstracts 10*, 1436-7; 34, 1184[2]).

Hosiery manufacturers join ASA as member-body. Anon. *Ind. Standardization 19*, 121 (Sept. 1948).

The National Association of Hosiery Manufacturers is welcomed as a new member-body of the American Standards Association and the past and present standardizing activities of the NAHM are reveiwed.

India reports active program. Lal Verman, Indian Standards Institution. *Ind. Standardization 19*, 122-4 (Sept. 1948).

In the newly-organized Indian Standards Institution, the work of its textile division council is well under way. Committees are working on problems concerning cotton products, jute, woolens, textile mill accessories (shuttles, bobbins, etc.), and textile machinery. A textile standards committee is to deal with problems common to the industry as a whole, including test methods. To facilitate export-import trade, this group is already cooperating with the International Organization for Standardization in matters such as test methods for tropical climates. Other standardization activities are outlined.

Measuring wear resistance of man-made fibres. J. R. Stewart, Provincial Inst. of Textiles. *Can. Textile J. 65*, 41, 44-5 (Oct. 29, 1948).

In an address, the measurement of wear resistance is discussed with reference to early research work, abrasion resistance and serviceability, modern testing equipment, time, temperature, humidity and tension, practical wear evaluation, and laboratory and service tests. It is pointed out that

the main problem in laboratory wear tests is not so much reproducibility of results but correlation of the tests with some significant, quantitative index of deterioration.

Preliminary investigation to determine the minimum requirements for serviceability of cotton sheeting. L. Corbeau & W. Werker. Communication No. 80, and Appendix from the Vezelinstituut, T. N. O., Delft, Netherlands; *in Dutch.*

Various methods of testing the fabrics according to expected requirements included practical washing tests in a laundry combined with determination of certain physical and mechanical properties. A positive correlation between tensile strength and durability in washing was found, so that durability can be predicted, at least for fabrics in the strength range of 25 to 60 kg (55 to 132 lb). The experimental data are tabulated and plotted in an appendix which is bound separately.

Proposal for a more uniform nomenclature for and a more objective tactile appreciation of the physical properties related to the hand of woven knitted fabrics, yarns and fibers. H. van Lingen. Communication No. 86, Vezelinstituut, T. N. O., Delft, Netherlands; *in Dutch.*

This work was instigated by work reported in *ASTM Yearbook 1943*, Supplement III, p. 346, 370, and *Ibid. 1946*, Supplement III a, D123-45, Appendix III, p. 533 and in *Am. Dyestuff Reptr. 29*, 560 (1940). The properties considered are flexural resistance, compressional resistance, and folding resistance. The Dutch terminology has been brought into close agreement with the corresponding tentative standards of the Central Normalisatic Bureau at The Hague, but the proposal is still in the preliminary stage. Each of the properties mentioned must be studied in detail, partly because of existing discrepancies in definitions, before any well-founded recommendations concerning the use of special apparatus and interpretation of the results can be made.

Clothing and fabrics G 1

Cold flexibility test for impermeable materials. Otto Morningstar. Mass. Institute of Technology Memo Rept. 53, Dec. 1943. 56 pp. PB L 78633. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8, 1947). Microfilm $2.00, Photostat $4.00.

The object of the work described in this report was to develop suitable apparatus for evaluating the serviceability of impermeable fabrics at low temperatures. It was planned that the method developed should be suitable for incorporation in

U. S. Army specification No. 6-269C, "Cloth, Impermeable". Several types of impulse crack testers were evaluated and were found unsuitable. Test results obtained on impermeable fabrics with the wear tester MIT-E3 at −10°F, ± 2°F, correlated satisfactorily with man wearing tests on impermeable decontamination suits made from the same fabric and it was concluded that wear tester MIT-E3 is suitable for predicting the serviceability of impermeable fabrics at low temperatures. Tables, drawings and photographs are included.

Commercial standards recently issued by the National Bureau Standards. Anon. *Ind. Standardization 19*, 142 (Oct. 1948).

New commercial standards have been issued by the Commodity Standards Division of the NBS, including CS 151-48, Body Measurement for the Sizing of Apparel for Infants, Babies, Toddlers, and Children (for the knit underwear industry), and CS 103-48, Rayon Jacquard Velour (with or without other decorative yarn), Second Edition.

Properties of certain constructions of cotton fabrics knit from single yarns. Arnold M. Hansen & Hazel M. Fletcher, USDA. *Rayon & Syn. Tex. 29*, 52-4 (Nov. 1948); 61-4 (Dec. 1948).

The research reported in this paper was directed toward: (1) development of knit fabric constructions that would overcome the undesirable properties of spiraling and uneven appearance characteristic of plain knit fabrics of single cotton yarns; and (2) a study of the effect of construction upon the elastic properties of knitted fabrics. The fabrics studied were designed primarily for the welts of women's hose, however, the constructions would be used for various types of knitted cotton underwear. Results of the study showed that fabrics of 1-way and 2-way stretch constructions knit from single-ply yarns were superior in appearance to plain knit fabrics made of the same yarns. These simulated rib constructions did not have the uneven shaded appearance of the plain knit, and *they did not spiral.* Some of the simulated rib constructions were equal to the plain knit in their elastic properties. The 1-way stretch or plain knit fabrics always had the greatest elastic recovery. Both of the 2-way stretch constructions were lower in this property than the 1-way stretch construction, but they had a more even appearance.

Some physiological effects of textiles on the human body. Part I—Clothing. Part II—Equipment. J. Boyd. *J. Textile Inst. 39*, T319-38 (Oct. 1948).

Part I. This is an account of investigations made on the physiological effects of British Jungle Gabardine and 2 Japanese fabrics on soldiers in a hot, wet, environment. Part II. The effects of wearing standard jungle gabardine clothing with different sets of web equipment were investigated to determine the efficiency of each set.

Study of methods suitable for the evaluation of the stiffness and resilience of coated and impregnated gasproof cloth. With Appendix I. Graphs Nos. 1-276. Irving Pockel & Otto Morningstar. Mass. Inst. of Technology, Memo Rept. 30. Apr. 1943. 210 pp. PB L 78637. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8. 1947). Microfilm $7.00, Photostat $21.00.

The purpose was to develop a reliable method for the determination of the relative stiffness and resilience of coated and impregnated gasproof cloth. Four methods were considered. The Ring Loop method proved to be the most reliable. The changes of stiffness and resilience of coated fabrics with respect to temperatures were evaluated by the Ring Loop method at various temperatures from 70°F to —40°F. Drawings and photographs are included. Appendix I presents graphical data. For Appendix II, see PB L 78636.

Study of methods suitable for the evaluation of the stiffness and resilience of coated and impregnated gasproof cloth. Appendix II, Tables Nos. 1-284. Irving Pockel & Otto Morningstar. Mass. Inst. of Technology, Memo Rept. 30. Apr. 1943. 307 pp. PB L 76836. *Bibl. Sci. Ind. Reports 6*, 547 (Aug. 8, 1947). Microfilm $7.00, Photostat $21.00.

These tables present the findings for the study described in PB L 78637. (See above).

Testing company to produce standard soiled fabrics. Anon. *Ind. Standardization 19*, 125 (Sept. 1948).

As a result of the variability of soiled fabrics used in detergency tests, due to both materials and preparation, the United States Testing Company, Inc., has commenced production of standard soiled fabrics of cotton, wool, acetate, viscose, and possibly nylon. A questionnaire sent to a number of companies conducting tests with soiled fabrics indicated that this move should prove desirable. Fabrics will be soiled to a standard, controlled reflectance and checked after aging and after treatment with a standard detergent.

Testing rotproofness of cellulosic fabrics. L. D. Galloway. *Textile Mfr. 74*, 332-4 (July, 1948).

Chemical criteria of rotproofness, soil exposure and pure culture tests, and mildew tests are discussed with a view to assisting in judging the value of any particular method, past or future, put forward as a possible standard.

Wear resistance of fibers. J. R. Dunkerley, Provincial Institute of Textiles. *Textile Industries 112*, 110-11 (Dec. 1948).

A summary of wear resistance testing of fibers, yarns, and fabrics is given. The correlation of these tests with a significant index of deterioration is also discussed.

Instruments and instrumentation G 2

Electron microscopy of wool. Anon. *Textile Industries 112*, 96-8, 207 (Dec. 1948).

The degradation effects of various physical and chemical agents on wool is being studied by a simplified shadowed replica technique. A negative replica of the wool fiber is prepared in a thermoplastic film, which is thin enough to examine in the electron microscope and which may be shadowcast with a suitable metal for added contrast. The procedure for preparation of the replica and some of the results of the study of the morphology of the wool fiber are described with details given of how the electron microscope works.

Inertia effects in textile testing equipment. H. F. Schiefer, Natl. Bur. Standards. *Textile Mfr. 74*, 183-5 (Apr. 1948).

See TTD: *5*, 135.

Measurement of the creasibility of fabrics with the V. I. mercury crease-angle meter. H. van Lingen. Communication No. 88 from the Vezelinstituut T. N. O., Delft, Netherlands, Jan. 1948; *in Dutch.*

Published information on methods of measuring crease resistance is reviewed. The method adapted is a combination of Clayton's procedure (*J. Soc. Dyers Colourists 48*, 295 (1932)) and that of Quehl (*Melliland Textilber. 18*, 241 (1937). The crease angle is measured on a surface of mercury. The apparatus is simple and physically correct, and can be assembled from materials generally available in the laboratory. Much work remains to be done, however, especially on the very important time factor, before the real value of the new test can be established.

Modification of the flat-bundle test method for testing cotton-fiber strength. J. K. Phillips, Goodyear Tire & Rubber Co. *Textile Research J. 18*, 684-6 (Nov. 1948).

The Pressley fiber jaws are used on the Scott

IP-4 tester to measure the tensile strength of a flat bundle of fiber at different test-specimen lengths or jaw spacings. Data are presented which show that the apparent tensile strength of cotton fiber decreases very rapidly as the jaw separation is increased. Further work will be necessary to determine if this confirms the weakest link theory proposed by Pierce (*J. Textile Inst. 17*, T355-68 (1926)).

Stress-strain tester for textiles employing a magnetic strain gage. J. W. Ballou, E. I. du Pont de Nemours & Co. *Textile Mfr. 74*, 230-2, 233 (May, 1948).

See TTD: *5*, 136 (Mar. 1948).

Textile instruments—I-VIII. R. W. Moncrieff. *Fibres 8*, 189-94 (June, 1947); 292-5 (Sept. 1947); 381-6 (Nov. 1947); *9*, 11-15 (Jan. 1948); 53-5 (Feb. 1948); 170-5 (May 1948); 219-24 (June, 1948); 301-4 (Aug. 1948); 381-3 (Oct. 1948).

In this series of articles on textile instruments, the first 8 papers have covered the following subjects: I-II.—Testing strength and elongation at break of yarns; III—Testing strength and elongation at break of woven fabrics; IV—Pts. 1 & 2—Measuring wear; V.—Measurement of the tensile strength and extensions of single fibers; VI.—Measurement of counts and denier of yarns; VII.—Measurement of counts and deniers of yarns and fibers; VIII.—Testing fastness to light. (To be continued).

Yarn measuring machine. Jos. K. Cobert. Can. P. 446 352, Jan. 27, 1948.

A force of constant magnitude is applied to yarn compressing elements and the relative movement of the yarn compressing elements under the force indicates the denier of the portion of the yarn compressed between the elements.

TEXTILE MILLS H

Air conditioning and its relation to the modern textile mill. G. Lorne Wiggs & Leslie A. Walford, Wiggs, Walford, Frost & Lindsay. *Can. Textile J. 65*, 44-8, 50 (Dec. 10, 1948).

This is a survey of technical and engineering factors involved in the installation and operation of a well-designed air conditioning system in a new textile mill.

Air conditioning in textile mills. E. Howlett. *Textile Mfr. 74*, 22-26 (Jan. 1948); 79-81 (Feb. 1948).

In the first article the principles of air conditioning are reviewed briefly and features of the Hall and Kay systems are described and illustrated. The second article discusses the factors involved in installing proper air conditioning systems, and includes a description of the features of the Bivac system.

American visitor reports practices in Swiss textile mills. John Duerst, Clark Thread Co. *Textile Industries 112*, 91-2 (Dec. 1948).

A discussion of the conditions and machinery in Swiss textile mills includes some details of the waste control, spinning frames, and roving frames used.

Application of the rubber concentrate Revertex in the textile industry. Metallgesellschaft A. G. FIAT Microfilm Reel H 40; frames 3156-3198. Oct. 1, 1938. PB L 70036. *Bibl. Sci. Ind. Reports 6*, 629 (Aug. 15, 1947). Enlargement print $4.50; *in German.*

Bourne Mills now operate 6 diesels. Lawrence Anderson, Bourne Mills. *Industry & Power 55*, 86-7 (Nov. 1948).

Bourne Mills, Fall River, Mass., have installed Diesel engine-generators and relegated the steam power plant, formerly used, to supplying only steam required for necessary textile processes. The equipment is described and illustrated.

Can YOU palletize? Curtis H. Barker, Jr., Harold L. Posner, & Welles Worthen. Pallet Sales Corp. *Safety Eng. 96*, 18-22, 54-59 (Sept. 1948).

Palletizing of packaged material to permit mechanized handling offers savings of time and space to companies of all sizes which handle solids. This article discusses the necessary conditions for palletized load handling, as to floor surface, loading, and layout, headroom, doorways, and elevators, and nature of material. Choice of pallet sizes and types is discussed; most popular are 48 by 48-inch single or double face pallets, preferably made of hardwoods. Construction and maintenance are discussed, and procedure for loading palletized materials into trucks and railway cars is described.

CHEMICAL FORMULARY. H. Bennett. Vol. VIII. Brooklyn, N. Y., Chemical Publishing Co., Inc., 1948. 448 pp. Price: $7.00.

This Volume VIII is a valuable addition to the previous volumes and contains thousands of new, practical and tested formulae, some of which have never been published before. It is in reality a collection of timely practical and usable commer-

cial formulae and recipes for making thousands of products in many fields of industry . . . The section on textiles deals with bleaching cotton goods; waterproofing; package dyeing of rayon; dyeing of nylon hose; printing of woolen fabrics; textile sizing; organdie finish; fungus and mildew-proofing; rayon tire cord treatment; flameproofing; wool pulling compound, just to mention a few. There is also a list of chemical tables, references, tradename chemicals, where to buy them and sellers of chemicals and supplies and a good 19 page index.—*Rayon & Syn. Tex. 29*, 122 (Dec. 1948).

CLOTHES MAKE THE MAN. Elliot W. Springs. New York, Springs Mills, 1948. 433 pp. Price $1.00.

This volume includes a history of the Springs Cotton Mills, a collection of the author's letters on a variety of subjects, and a number of short stories.

Critical review of the literature of 1947 on sewage and waste treatment and stream pollution. W. Rudolfs, H. E. Babbitt, D. E. Bloodgood, *et al. Sewage Works J. 20*, 224-72 (Mar. 1948).

In this critical review of 295 references are a number of items of interest to the textile industry.

Designed for working. Anon. *Safety Eng. 96*, 23, 32 (Sept. 1948).

Improvements in design of work clothes have resulted in comfortable, safe, and attractive uniforms for many jobs. Prominent in this field is Mrs. Helen Cookman, and one of the leading companies is Reeves Brothers, Inc., cotton textile manufacturers. Accompanying this brief article are several well chosen illustrations of good designs.

Developing a waste disposal process. Harding Bliss. *Chem. Eng. Progress 44*, 887, 894 (Dec. 1948).

Development of a waste disposal process must necessarily start with: (1) determination of the type of waste, (2) determination of the rate and periodicity of flow of the waste, (3) analysis of the waste. From these, the bulk volume rates and concentrations and variations with time can be calculated. Frequently the data thus obtained will indicate where certain wastes can be changed in character or in volume by certain changes in operating techniques. Any disposal process should first consider all possible recovery methods available to be applied to the wastes in question. Complex mixtures can frequently be separated into salable or useful products. The cost of recovery

in comparison with the market cost of the material being recovered and the possible effect on the market value of the product, if the quantity of recovered item is large, must be considered. Treatment of waste generally is separated into two steps, (1) the concentration of dilute waste and, (2) the ultimate treatment of such waste. Concentration may be obtained by precipitation, by ion exchange, by evaporation, or extraction. Ultimate treatment methods include flocculation, electro-chemical methods, crystallization, flotation, etc. After preliminary laboratory experiments indicate generally the best method of proceeding, pilot plant operations are essential. Accurate cost estimates and, in particular, any labor estimate must be made on a pilot plant basis.

LCL

Developments in Czech textile machinery. Anon. *Textile Mfr. 74*, 325-7 (July, 1948).

Details and special features of the latest Zbrojovka warping creel, the new model T47 Hrdina automatic loom, and the Schneider automatic tensionless jigger are described and illustrated.

Electrical progress in the textile industry. F. D. Snyder, Westinghouse Electric Corp. *Elec. Eng. 67*, 846 (Sept. 1948).

This article describes basic electric equipment now employed in the industry in various combinations to get many desired results in machine operation and performance. Several forms of starting equipment used for the controlled acceleration and deceleration of many textile machines are discussed. Operational characteristics of the following variable speed drives are mentioned also: Slip-ring-type a-c motors, d-c motors of the series type with a series type generator, and d-c motors of the shunt field type with variable voltage generators.

CAC

Electrostatic air cleaning in the textile industry. C. H. McWhirter & R. P. Posey, Westinghouse Electric Corp. *Elec. Eng. 68*, 66 (Jan. 1949).

Electrostatic air cleaners in textile plants can be justified on the basis of improved product quality, reduced maintenance costs, and improved comfort and health conditions. These cleaners usually are installed in one or more of 3 general types of systems: central systems, which supply entire sections of the plant with air; numbers of small individual forced air systems installed in a single large room; and forced air systems for the drying of yarns that are required to be extremely clean. Electrostatically cleaned air is particularly

justified for those areas of a textile plant in which the operations of throwing, spinning, and twisting are performed.
CAC

Engineering highlights of 1948: uses of electric power. Anon. *Westinghouse Engineer 9*, 16-27 (Jan. 1949).

In this survey of Westinghouse engineering developments, drives for textile machinery are discussed briefly. Application of Rototral tension control systems on dyeing and sizing equipment, rug cleaners, and spinning machines for synthetic yarns are mentioned, along with an improved control for a bias cutting machine. A trend toward use of an individual generator for each motor in a sectional mill for better control is noted. Other sections of this review dealing with other drives, power distribution and lighting developments may contain items of interest to textile mills.

Equipment And Labour Utilisation In The Cotton Industry. Manchester, The Cotton Board. Price: 6s.

This book is a collection of the papers submitted at the Buxton Conference organised by the Cotton Board in October, 1947. The conference was attended by over six hundred directors, managers and trade union representatives. The main points dealt with were increased output through redeployment of labour with and without re-equipment; the part played in modern weaving by the automatic loom; the ideal spinning mill; the adaptation of the Lancashire loom to the more looms system; observation on costs of Lancashire and automatic type looms; automatic weft replenishing attachments; modern methods of preparation for weaving cotton and rayon staple; and modern rayon production.—*Textile Mfr. 74*, 439 (Sept. 1948).

Famous British textile engineering firms. Anon. *Textile Mfr. 74*, 349-51, 354 (Aug. 1948).

This is an account of a tour, sponsored by the Ministry of Supply, of several textile machinery firms in England. The latest developments in textile machinery are noted for the various concerns, and trends in development of machinery are considered.

Give safety a shot of color. C. H. Cole, E. I. du Pont de Nemours & Co., Inc. *Safety Eng. 96*, 28, 30 (Sept. 1948).

Use of a safety color code is helpful in reducing industrial accidents. Six basic colors are em-

ployed, each with a specific and uniform meaning. Red is used for fire equipment, orange for cutting, crushing, or grinding hazards, yellow for stumbling or falling hazards, green for safety equipment, blue as a warning against starting, moving, or handling equipment, and white for housekeeping markings and supplies. Excessive use of color is to be avoided, but a uniform code is of proved effectiveness.

Glass block windows in modern mill construction. F. A. Westbrook. *Textile Mfr. 74*, 220-2 (May, 1948).

The special features of glass blocks and their application in modern mill construction are described. The use of "foam glass" as an insulating material for roofs, floors, ceiling and walls is also considered.

Higher speeds require better lubrication. Anon. *Rayon & Syn. Tex. 30*, 89-92 (Jan. 1949).

The higher speeds made possible through improvements in textile machinery require the use of specific oils and greases. Factors affecting the proper selection of lubricants are the type, size, speed, load, and temperature of bearings, and moisture conditions. The various types of lubricants and their characteristics and applications are discussed. Suggestions are given for a systemmatic program of lubrication maintenance.

Improved textiles through electronically cleaned air. R. L. Lincoln, Westinghouse Electric Corp. *Am. Wool Cotton Reptr. 62*, 11-12, 49 (Dec. 23, 1948).

Electrostatic air cleaners consist of 3 basic elements: a source of high voltage direct current called a power pack; an ionizer consisting of an assembly of fine wires and ground tubes; and collector cells consisting of parallel plates. These air cleaners are basically devices to collect fine dust of low concentration, and they are generally made part of the air conditioning or ventilating system.

Industrial waste problem. IV. Brass and copper, electroplating, and textile wastes. Wm. S. Wise, Conn. State Water Commission. *Sewage Works J. 20*, 96-102 (Jan. 1948).

Some data are given on the pH, total solids, organic solids, suspended solids, oxygen consumed, 5-day B. O. D., and fats and greases for cotton, woolen and rayon wastes. For cotton wastes, a reduction of about 60% in oxygen consumed was obtained with H_2SO_4, $FeSO_4$, alum, lime and $CaCl_2$ in proportions adapted to the individual waste. Further treatment on a trickling filter reduced O_2

consumed some 25%. Alum and H_2SO_4 were very effective with wool wastes. Rayon wastes treated with 3.5 lb. $FeSO_4$ and 2 lb. lime per 1000 gal reduced the O_2 consumed 90% and suspended solids 90%.

THE KENDALL STORY. The Kendall Co., 1948. 24 pp. This is an illustrated booklet describing the products made by the company, the history of the company, and its present organization.

Make your own climate. A. T. Spangler, Carrier Corp. *Safety Eng. 96,* 18-20, 42-3 (Aug. 1948).

This brief article reviews the development and importance of industrial air conditioning in several fields. Most prominent is the textile industry, where humidity and temperature control were early employed to reduce breakage, stretching, fuzzing, and lint formation during spinning, weaving, and knitting. Synthetic fibers, especially nylon, required exacting control of temperature and humidity, which, almost as a by-product, brought improved worker comfort and productivity.

Modern equipment removes water impurities. B. J. Valise. *Textile World 98,* 122-3, 222, 226 (Dec. 1948).

The increased demand for high quality water has resulted in several low cost processes developed in the past 15 years. Several improvements in filtering and settling equipment have resulted, for example, the sludge-contact reactor. This uses a deep sludge bed or blanket of previously accumulated precipitates to hasten further precipitation of impurities in fresh water. Removal of iron and manganese can be accomplished by several methods, the choice depending upon the relative proportions of iron and manganese present. Generally the water must be made alkaline and the precipitated hydroxide filtered. The use of zeolites and other ion-exchange materials has also come to the front.

LCL

Modern mill construction and layout. F. A. Westbrook. *Textile Mfr. 74,* 165-7 (Apr. 1948).

Features of the new plant of the McGinley Mills, Phillipsburg, N. J., are described. The mill produces rayon piece goods. Louvres are provided under most of the windows to carry off hot air when the air conditioning system draws fresh air into the mill for evaporative cooling. Walls are 15 ins. thick; and are faced with tapestry brick over insulated brick, with air space in the center. The interior finish is glazed tile. Glazed blocks are used instead of conventional windows.

More efficient production at remodelled Uxbridge Mill. Anon. *Am. Wool Cotton Reptr. 62,* 10-11, 21-2 (Dec. 30, 1948).

The construction, layout, air conditioning system, and lighting of a modernized mill (Uxbridge Mill) are described. Improvements in the mill have increased production, improved the final product, decreased seconds, and reduced absenteeism to a minimum.

New roll handling truck. Anon. *Textile Industries 112,* 183 (Dec. 1948).

Textile products of small diameters and lengths not exceeding 5 feet can be handled on a new heavy duty roll handling truck.

Nomogram. Anon. *Textile Industries 112,* 98-9 (Dec. 1948).

A nomogram for determining the volume of a vertical cylindrical tank, vat, or drum, when the diameter and height are measured in inches, is given with instructions for using it.

One-shot lubrication of the twister and spinning frame. Anon. *Saco-Lowell Bull. 20,* 18-23 (July, 1948).

Features of the Bijur system of semi-automatic metered lubrication, as applied to Saco-Lowell twister and spinning frames, are described and illustrated.

Plant modernization and quality control in linen manufacturing. S. A. G. Caldwell. *Textile Mfr. 74,* 410-11 (Sept. 1948).

Improvements in linen manufacturing operations are reviewed briefly, and it is noted that, in many instances, mills have not availed themselves of the improvements available.

PREVIEW OF AMERICAN VISCOSE CORPORATION. Philadelphia, Pa., American Viscose Corp., 1948. 39 pp. Price: Free.

This booklet was prepared as an informal outline for the use of college graduates interested in general information about the Corporation.

Sisal fiber vs. wet water. Dawson Powell, Grinnell Co. *Safety Eng. 96,* 22-3, 50 (Aug. 1948).

Water containing wetting agents has proved effective in rapidly putting out fires in sisal fiber, a material especially subject to continued tunneling of fires after surface flame has been extinguished. In tests made by the Grinnell Fire Fighting Laboratories, sisal fires were controlled in 3 minutes by water containing 0.8% of a wetting agent, applied as a low-velocity spray of 0.40 gallons per square foot per minute. Fires in piles

of 190-400 cu. ft. of loose and semi-compressed sisal fiber, treated in this manner, could be pulled apart with bare hands after 3 minutes of spraying and the small channeling fires put out with hand equipment. Other fibers are expected to behave as well as, or better than, sisal.

Springs Cotton Mills' modern Grace Bleachery. Anon. *Textile Industries 112,* 146A-146D (Dec. 1948).

Equipment of the Grace Bleachery, a bleaching, dyeing, and finishing plant, is described and illustrated in a series of photographs.

Steam generators offer mills many advantages. Anon. *Textile Industries 112,* 102 (Dec. 1948).

Oil or gas-fired steam generators permit savings in fuel and labor costs in textile mills. They have the feature of cleanliness of operation and generate steam only as it is required. Full working pressure may be obtained in from 3 to 5 minutes of operation.

Textile industry in Canada and the U. S. A. N. Mirsky. *Textile Mfr. 74,* 174-8 (Apr. 1948). 206-7, 227 (May, 1948).

Machinery and methods observed in a number of mills in the U. S. A. and Canada during a recent visit are described. The observations have to do particularly with wool processes.

Textile industry in China. Anon. *Am. Wool Cotton Reptr. 62,* 19, 32 (Dec. 23, 1948).

A brief survey is given of the textile industry in China.

Tool for handling piece goods. Anon. *Textile Industries 112,* 189-90 (Dec. 1948).

Rolls of piece goods may be easily removed from storage piles by inserting the "EasOut" in the end of the tube and pulling.

Unit operations review: drying. Samuel J. Friedman, E. I. du Pont de Nemours & Co., Inc. *Ind. Eng. Chemistry 41,* 27, 31 (Jan. 1949).

This survey article covers publications on drying in numerous fields during 1948. Of the 178 references cited, at least 10% are of probable interest to the textile industry. Accompanying papers in this review series on the unit operations of heat transfer, ion exchange, and materials handling may also include some references of interest.

What to expect in modern textile design. John A. McPherson, McPherson Co. *Am. Wool Cotton Reptr. 62,* v5-16, 79, 81, 83 (Dec. 16, 1948).

Essential features of construction, air conditioning, heating, lighting, and plant layouts for a modern mill are discussed, and the modernization of machinery is reviewed.

THE YORKSHIRE TEXTILE INDUSTRY. Oldham, John Worral Ltd., 1948. Price: 25s.

The sixty-third edition of this well-known popular directory has had the necessary revision needed to bring a work of this nature completely up to date. The first section is a general directory which includes an index to towns and villages, and manufacturing districts of Yorkshire. Yarn producers and processors are given, also a cloth finishing section, and a standard list of fabrics. The buying section has an alphabetical index to advertisers, and a buyer's guide. A wealth of extremely valuable information is included in both the commercial and statistical sections and a section dealing with educational matters completes a very useful work for easy and reliable reference purposes.—*Texile Mfr. 74,* 439 (Sept. 1948).

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Artificial sponges and porous materials from cellulose derivatives, a review. Torsten Jakobson. *Svensk Papperstidning 51,* 447-53 (Oct. 15, 1948); *in Swedish.*

Topics considered in this review are: production and properties of natural and artificial sponges; pore-forming, coagulating, desulphurizing, washing, drying, impregnating, and other after-treatments of foam masses from regenerated cellulose; continuous processes; cellular masses applied to a support such as paper, fabrics, etc.; manufacturing of porous masses of cellulose acetate; applications. Ninety references are given.

Cellulose ester solutions: evaporation in binary solvent mixtures. Charles R. Fordyce & David R. Simonsen, Eastman Kodak Co. *Ind. Eng. Chemistry 41,* 104-11 (Jan. 1949).

This paper presents data on evaporation of binary solvent mixtures, with and without the presence of cellulose acetate and acetate-butyrate. Though the work was done with coating and film applications in mind, it may also apply to fibers. Nine systems were studied, including mixtures of ketones (acetone), alcohols, chlorohydrocarbons, and hydrocarbons. In the absence of cellulose esters, the course of solvent evaporation was predicted well by the Rayleigh equation applied to vapor-liquid equilibrium date. With the esters present, the predictions were good initially, but

became poor later as solvent diffusion through the plastic film became a controlling factor.

Condensation of aliphatic compounds of higher molecular weight with polyalkylene polyamides, and the utilization of these products in textile chemistry. I. G. Farbenindustrie A. G. FIAT Microfilm Reel R 18; frames 5871-5899. Oct. 10, 1938. PB L 73824. *Bibl. Sci. Ind. Reports 6,* 581 (Aug. 15, 1947). Enlargement print $3.00; *in German.*

Conduction of electricity through cellulose. Part V. The effect of temperature. J. B. O'Sullivan. *J. Textile Inst. 39,* T368-84 (Nov. 1948).

The temperature coefficient of the electrical conductance of cellulose sheet impregnated with sodium nitrate or copper sulfate, each in 2 concentrations, was measured over a wide range of moisture contents. It appears to be a unique junction of the moisture content, irrespective of the kind or quantity of salt present. The results have been considered in relation to various possible factors which might explain the effect of moisture content on the electrical conductance of salt-impregnated cellulose. It appears that at moisture contents above 50%, the principal factor is viscous hindrance to the migration of hydrated ions in capillary channels in the cellulose. At moisture contents of 10% to 20%, the principal factor appears to be a dynamic equilibrium between broken and unbroken channels, the ions being stopped at breaks until these are repaired by condensation of water molecules from the gas phase. The values at intermediate moisture contents can be explained as being due to a combination of these 2 factors. (See also TTD: *4,* 513).

Construction materials for important chemicals. *Chem. Eng. 55,* 99-128 (Nov. 1948).

A series of articles describes the materials of construction for equipment used in the manufacture of 17 important chemicals. Inasmuch as a number of these chemicals are used in the textile industry, the construction information given should be highly valuable. These articles describe materials now actually used in these industries.
LCL

Dependence of wetting and hydrophobing effect on the chemical constitution. F. Niermann, Erlangen Univ. FIAT Microfilm Reel I-275; frames 5865-5876. July 10, 1939. PB L 73550. *Bibl. Sci. Ind. Reports 6,* 641 (Aug. 15, 1947). Enlargement print $1.50; *in German.*

Determination of the water content and the water absorption of papers. W. Brechet. Inst. für Papierfabrication, Tech. Hochschule, Darmstadt. *Melliand Textilber. 29,* 1-3 (Jan. 1948).

Paper makers refer to the moist weight of paper and therefore give values for the absorption of moisture which differ from the values used by textile technologists. Formulas, tables, and graphs are given for converting one form of expression to the other.

Dielectric measurement of the chain mobility of linear high-molecular substances. F. Würstlin. *Kolloid Z. 110,* 71-8 (Aug. 1948). (See also *Kolloid 105,* 9 (1943); *in German.*

Recent work on the measurement of the variation of the dielectric constant with temperature at constant frequency is reviewed. The temperature at which parts of the molecules begin to move and the temperature at which the molecules themselves move, determined by plotting dielectric constants against temperature are discussed in relation to the structure of linear molecules. The effects of polar groups, of crystalline and non-crystalline regions, of chemical constitution and molecular weight are also considered in relation to freezing point and the temperature of initial molecular mobility.

Distribution of chain lengths of cellulose in relation to viscose filtration. P. H. Teunissen, Res. Lab. of A.K.U. and affiliated companies, Arnhem, Holland. *Svensk Papperstidning 51,* 497-500 (Nov. 15, 1948); *in English.*

To accurately determine the clogging factor, the quantity of filtered viscose (V) must be measured as a function of the time (t) and $\frac{t}{V}$ must be plotted against t. The points form a straight line after a time; the tangent of the angle if inclination of this line is the clogging factor, a quantity characteristic of the filtration. This clogging factor is not independent of the viscosity of the viscose. Viscose samples were prepared by dissolving (1) normally aged alkali cellulose, and (2) by dissolving a mixture of non-aged and very long-aged alkali cellulose, and the effect of the distribution of chain lengths in these samples on the clogging factor measured. No difference in clogging factor was found when the effect of viscosity is considered. It was concluded that no relationship between the distribution of chain lengths and the clogging factor was found. This conclusion is discussed in relation to the work of Vuori, (Thesis,

Helsinki, 1947), who assumed that such a relationship exists.

Distribution of free hydroxyl groups in cellulose acetate. C. A. Redfarn & Margaret C. J. Boyle. *Brit. Plastics 20*, 63-4 (Feb. 1948).

The theory of C. A. Redfarn, *Brit. Plastics 14*, 13-14 (1942) and the work of F. B. Cramer & C. B. Purves, *J. Am. Chem. Soc. 16*, 3458 (1939) and of T. S. Gardner and C. B. Purves, *Ibid, 64*, 1539 (1942) were reviewed in relation to this problem and the method of these latter investigators was repeated on 5 samples of British origin. It is concluded that the method does not give conclusive results concerning the distribution of free OH groups in cellulose acetate.

Formulas and fiber properties help fabric developers. Roy Wood. *Textile World 98*, 131, 198-202 (Dec. 1948). **Influence of mixed fibres on yarn and fabric design.** Roy Wood. *Can. Textile J. 65*, 44-6 (Oct. 29, 1948).

Although the use of blended fabrics is still in the development stage, certain information is now available to aid the fabric designer in the use of blended fibers. To do this, it is essential that the designer have a thorough knowledge of fiber properties and the ability to interpret the properties into specific mechanical performances of yarns and fabrics. Information of this kind must include the geometric form of the fibers available and the stress-strain characteristics of the fibers to be used. From the stress-strain diagrams of the fibers being considered can be calculated the elasticity, resilience, toughness, stiffness, etc., which will help in designing their use. A tabulated form is included to show how blends can be made to increase certain properties of the fibers being used.
LCL

Heat of absorption of water by cellulose. W. Howard Rees. *J. Textile Inst. 39*, T351-67 (Nov. 1948).

A review is given of the literature on the measurement of heat liberated when hygroscopic textile materials absorb moisture, and a method is described for measuring the heat of wetting textiles, from which data the heat of absorption may be derived. Results obtained for heat of wetting and heat of absorption are given for cotton, mercerized cotton and certain rayons conditioned on the absorption route. The conclusion is drawn that the heat of absorption of cellulose at zero moisture is 283 calories per gram of liquid water (15.6 kilocalories per mole of water vapor). A

modified form of the Clausins-Clapeyron equation may be used to calculate heat of absorption values from moisture absorption data. The thermostatic action of hygroscopic textile materials on the human body is also discussed.

Investigations on cellulose reactions. IV & V. Tore Timell, Kungl. Tekniska Högskolan. *Svensk Papperstidning 51*, 509-12 (Nov. 15, 1948); 537-40 (Nov. 30, 1948); *in English.*

IV. The methylation of regenerated cellulose with methyl sulphate and alkali. V. The methylation of sodium cupricellulose. (See TTD: *6*, 86 for Parts I-III).

Modification of cellulose by reaction with formaldehyde. I. J. Gruntfest & D. D. Gagliardi, Rohm & Haas Co. *Textile Research J. 18*, 643-50 (Nov. 1948).

The reaction of formaldehyde with cellulose under the conditions of formalization was found to be competitive with the evaporation of the formaldehyde. No reaction takes place at temperatures below 30°C, while at higher temperatures (150°C) reaction takes place over a wide range of acid concentrations. High acidity produces a product stable to hydrolysis that is characterized by increased elastic modulus, resistance to creep, and reduced swelling. Under mildly acid or alkaline conditions, the cellulose-formaldehyde products are unstable and have properties similar to those of the starting material. The formaldehyde is easily removed from this material. The combining weight of formaldehyde varies with the concentration of the formaldehyde solution applied. The lower the concentration, the more nearly the combining weight approaches 12, which corresponds to the formation of simple methylene ethers with the cellulose.

Process for improving the properties of titanium dioxide and reprecipitated cellulose or compositions and paints which contain cellulose derivatives. I. G. Farbenindustrie A. G. Ger. patent application I 69971 IVc/8m, July 1, 1941. PB L 66884; frames 4524-4526. *Bibl. Sci. Ind. Reports 6*, 70 (July 4, 1947). Enlargement print $1.00.

Process for improving the properties of titanium dioxide and reprecipitated cellulose or compositions and paints which contain cellulose derivatives. I. G. Farbenindustrie A. G. Ger. patent application I 66973 IVd/8m, July 1, 1941. PB L 66884; frames 4524-4526. *Bibl. Sci. Ind. Reports 6*, 70 (July 4, 1947). Enlargement print $1.00.

Process for improving the properties of titanium dioxide and reprecipitated cellulose or compositions and paints which contain cellulose derivatives. I. G. Farbenindustrie A. G. Ger. patent application I 69973 IVc/8m, July 1, 1941. PB L 66885; frames 4527-4529. *Bibl. Sci. Ind. Reports 6,* 70 (July 4, 1947). ,Enlargement print $1.00.

Recent trends in polymer chemistry. Herman Mark, Polytech. Inst., Brooklyn, N. Y. *Chem. Eng. News, 27,* 139-142 (Jan. 17, 1949).

The relation of structure to the physical properties of rubbers and of fibers is discussed. Terylene, polyvinyl fibers, and Orlon are described. The possibility of producing commercially useful films from materials such as polyethylene, polyvinyl chloride, polyvinylidine chloride, polyacrylates, polyesters, polyamides, etc., is mentioned.

Research on the phenomena occurring during the stretching of polyamide fibers. I. G. Farbenindustrie A. G. FIAT Microfilm Reel R 18; frames 6231-6249. May 20, 1948. PB L 73824. *Bibl. Sci. Ind. Reports 6,* 582 (Aug. 15, 1947). Enlargement print $2.00; *in German.*

Viscoelastic properties of polymer solutions. John D. Ferry, Univ. of Wisconsin. *J. Research Natl. Bur. Standards 41,* 53-62 (July, 1948); RP 1903.

Dynamic studies of the mechanical properties of concentrated polymer solutions may be applied to gain information concerning molecular entanglement, especially in cases where linear molecules are intertwined with no junctions by primary or secondary bonds among them. Frequency-dependent parameters obtained from direct measurements of response to sinusoidal stress, or from the propagation of transverse waves, are compared with the calculated behavior of mechanical models. In an example cited, a solution of polystyrene in xylene, data within a limited frequency range are fitted by a retarded Maxwell element, characterized by one rigidity and 2 viscosities. The dependence of the former on concentration suggests that the elastic response involves the hindering potential opposing free rotation about bonds in the molecular chains.

TEXTILE EDUCATION AND RESEARCH J

Australia's new textile training centre. Anon. *Textile Mfr. 74,* 149-51 (Apr. 1948).

This is a brief account of the facilities, objectives,

and courses of the advanced textile training center that has been built around the Wool Department of the Gordon Institute of Technology at Geelong. The center is one of 3 established by the Australian Government. The other 2 colleges are located at Sydney and Melbourne.

CAREERS IN THE TEXTILE DYEING AND FINISHING TRADES London, Vawser & Wiles Ltd., 1948. Price: 5s.

The volume is divided into 11 chapters. Chapter one discusses the trade. Succeeding chapters deal with dyes and chemicals, theoretical process work, practical process work, the dyer, the cloth finisher, the works chemist, the works manager, other staff appointments, trade associations, and technical education. An introduction, appendices and index are also included.

Cotton plans research program. Leonard Smith, Natl. Cotton Council. *Textile Industries 112,* 123 (Dec. 1948).

Research projects relating to better mill processing and improved cotton products under the Research and Marketing Act are briefly reviewed.

Mills alert to call for more research, newer fabrics. Anon. *Am. Wool Cotton Reptr. 62,* 11-12 (Dec. 2, 1948).

Textile research, cotton research developments, improved fabrics, electronic devices, and cellulose acetate properties variation, as discussed at the annual Textile Research Institute meeting, are briefly summarized.

Research and development at Alexander Smith & Sons Carpet Co. Anon. *Am. Dyestuff Reptr. 37,* 700-02 (Oct. 18, 1948).

The development, present facilities, and current scientific interests of the Research and Development Division of Alexander Smith & Sons Carpet Co. are described.

WPU,Jr.

Research in the wool textile industry. B. H. Wilson, Wool Industries Research Assn. *Textile Mfr. 74,* 282-4 (June, 1948).

This is a summary of the report for 1947-48 by the Director of Research, Wool Industries Assn., and covers the following topics: Survey work, worsted drawing and spinning, nylon staple, roving levelness tester, "Syton", analysis of top irregularity, woolen carding, woolen spinning. twist, and weaving.

Tagged atoms offer a new and amazing research tool. Wm. D. Dall. *Textile World 98,* 103, 108 (Dec. 1948).

In a general article on radioactive atoms for industrial research, several examples of their application to the textile industry are mentioned. Among these are the following: determination of the amount of lubricant on rayon yarn by the use of radio-sodium in the lubricant sodium oleate; control of rayon manufacture by the use of radioactive sulfur or sodium; determination of the amount of electricity generated during textile processing by the use of radiocobalt and radiostrontium; measurement of film thickness by the use of radioactive iodine; measurement of film thickness by the penetration of beta-rays from Cl4. Radioactive sulfur is used in the study of colloids and colloidal electrolytes. Other methods are mentioned as possibilities.
LCL

Textile Research Institute progress. H. Wickliffe Rose. *Rayon & Syn. Tex. 30*, 53-4 (Jan. 1949).
In a talk given at the annual meeting of the T. R. I., the activities of the Institute are reviewed with respect to laboratory facilities, research projects, functions of the Institute, education, and future of research.

Textile research pays dividends (Textile Chemical and Fiber Developments in 1948). Robt. E. Wright & Milton Harris, Harris Research Laboratories. *Chem. Eng. News 27*, 23-5 (Jan. 3, 1949).

Developments in the fields of molecular structure of fibers, chemical modification of fiber structure, and in the wet processing of textiles are mentioned. The new fibers, Vicara, Vinyon N., Orlon, and polyethylene monofilaments are described. Fiber consumption and prices are also discussed. It is pointed out that the construction of fabrics has an important bearing on the effectiveness of many new finishes, and that their successful application may have to await the development of new fabric designs. There is no bibliography.